EXCLUSIVE TOP 100! BEST PCs, PRINTERS, MODEMS FOR WORK AND HOME

FIRST HANDS-ON TESTS: NETSCAPE NAVIGATOR 4.0

PC WORLD

MARCH 1997

Virus Killers!
9 Leading Anti-Virus Packages Compared

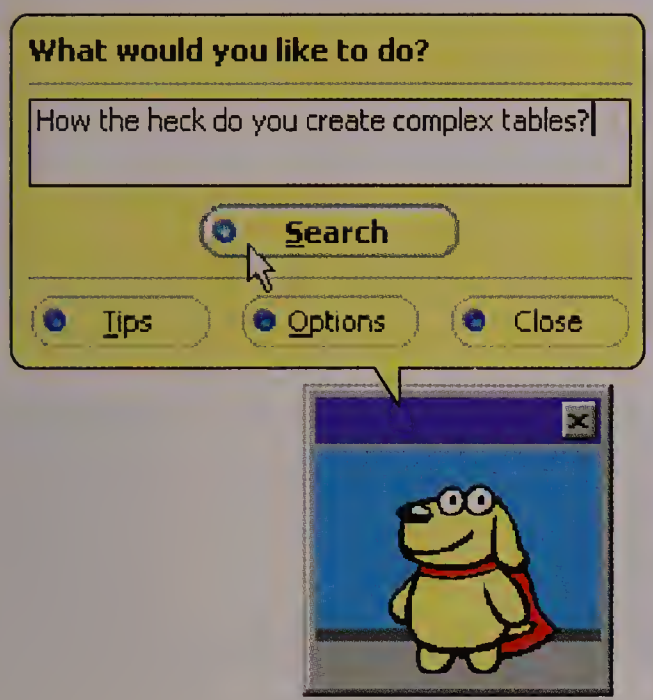
No More Film!
Best Buy Digital Cameras From $199

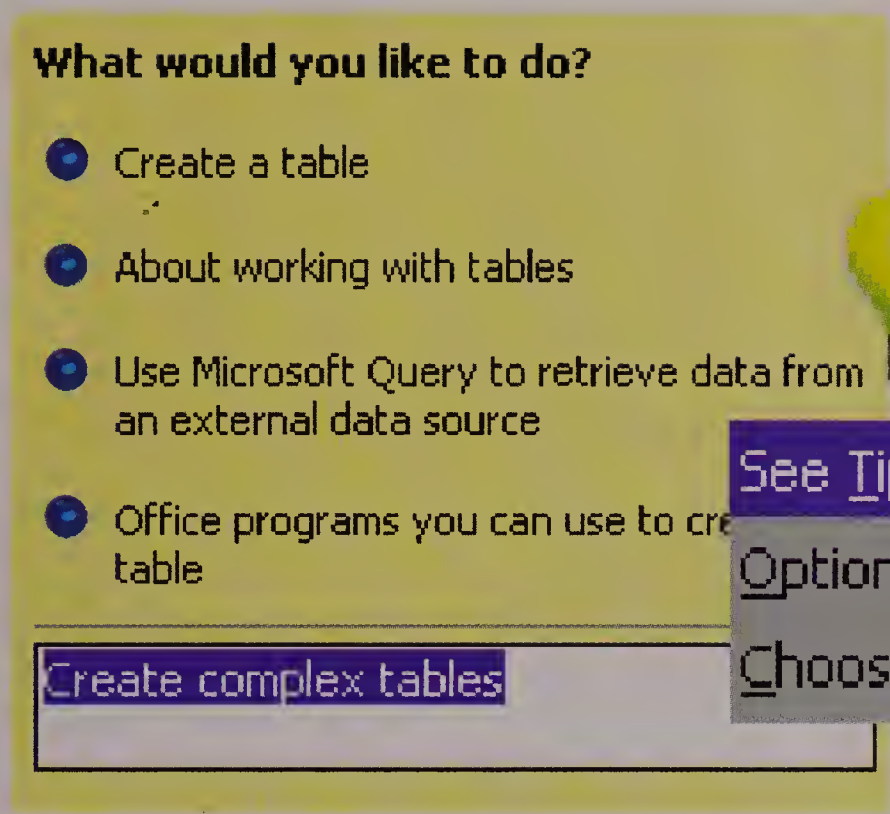
Lotus SmartSuite 97
As Good as Microsoft Office 97?

UNDOCUMENTED SECRETS

101 HIDDEN TIPS

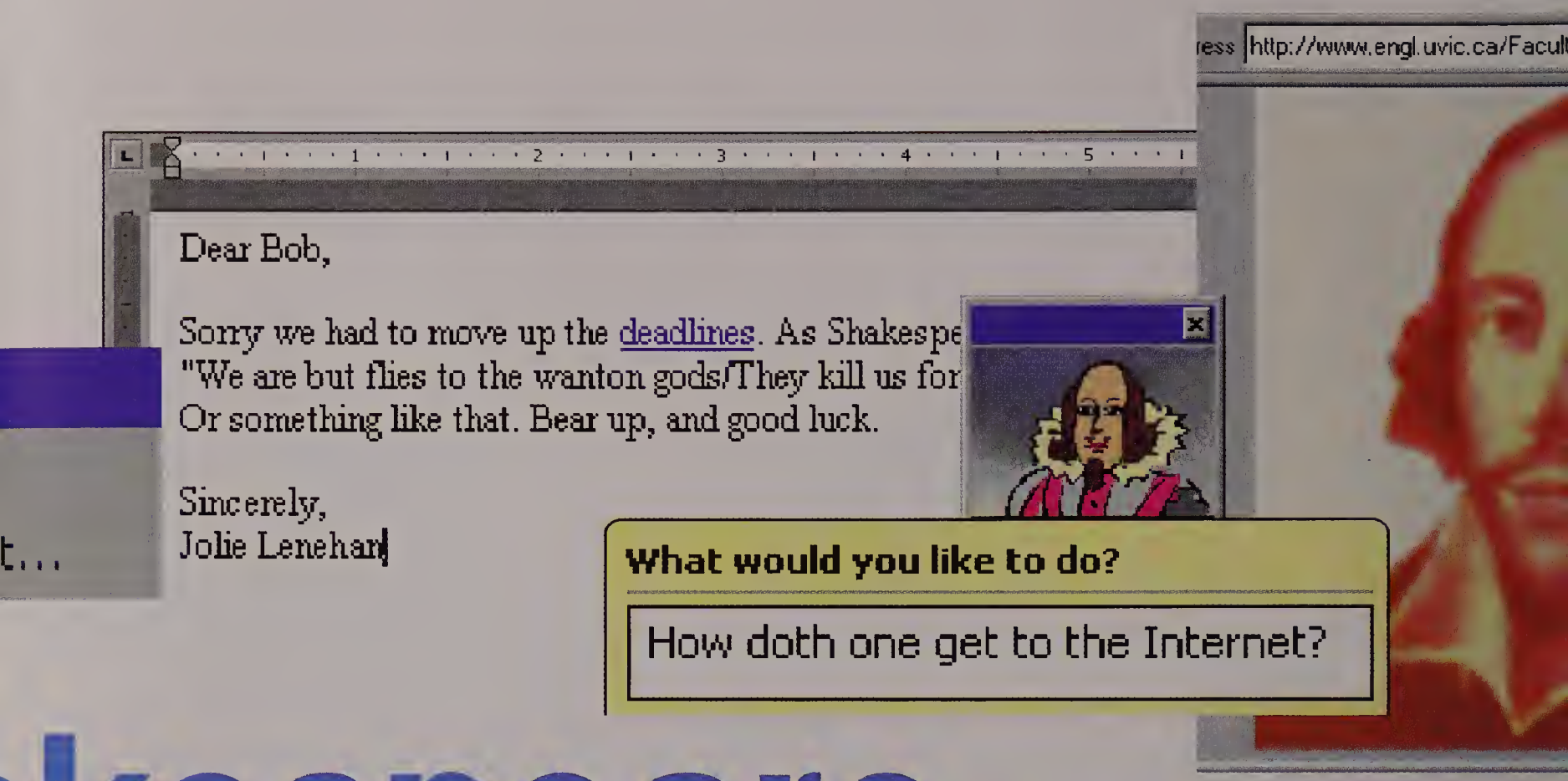
For Windows 95, NT, and 3.1





If you don't like Sha
pose your question to th

©1997 Microsoft Corporation. All rights reserved.
Microsoft and Where do you want to go today? are registered trademarks of Microsoft Corporation.



kespeare, e little animated dog.

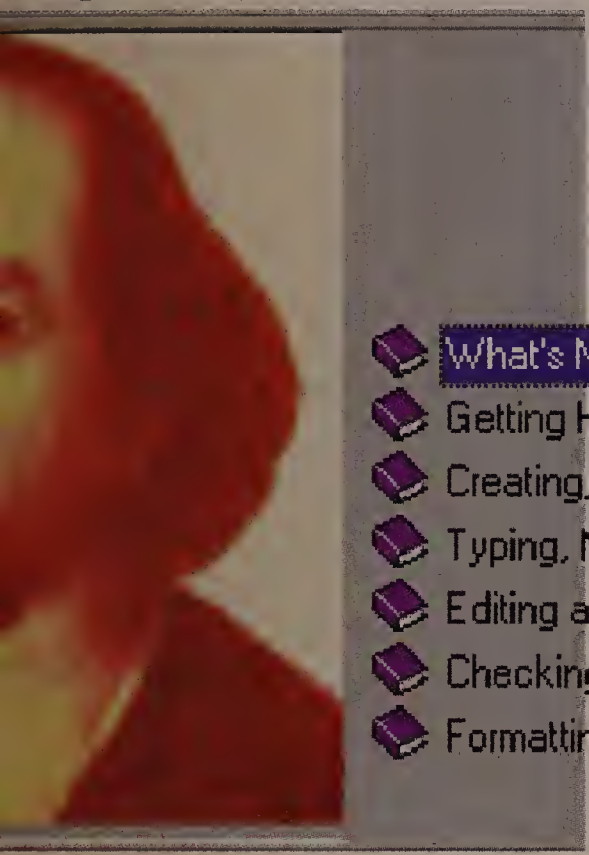
His name is Power Pup, and he's one of the Office Assistants, your personal guides to new Microsoft® Office 97. Office Assistants are designed to help you do things in fewer steps, with better results and less frustration. For instance, if Power Pup sees a shortcut to what you're doing, he'll suggest it. He'll walk you through tasks you need help completing. And you can ask him questions in plain English. There are nine Office Assistants, including the aforementioned bard and pup, a Hoverbot and a sarcastic, slightly bent paper clip. You can customize your helper to offer as much or as little help as you'd like—or you can turn him, her or it off. Microsoft Office 97 has lots of other intelligent improvements, like the overall webbiness, or the automatic correction of formula mistakes in Microsoft Excel. But what may prove invaluable to your mental well-being is that goofy-looking dog. To find out more about the little critters, visit our Web site.

Where do you want to go today?® www.microsoft.com/office/

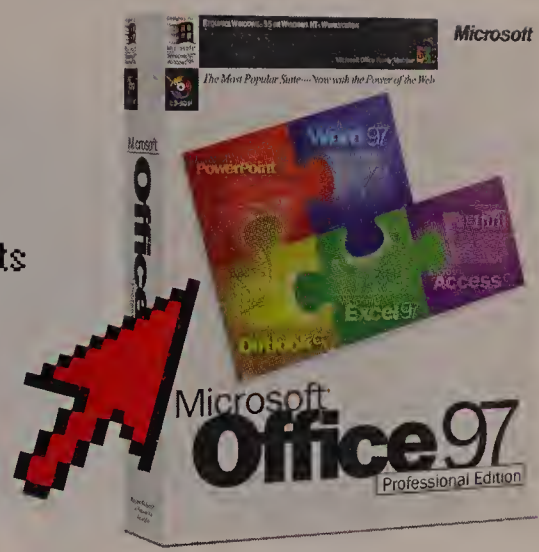
Microsoft®

Microsoft Office 97/now/

omePage/ISShakespeare/Index.html



- What's New
- Getting Help
- Creating, Opening, and Saving Documents
- Typing, Navigating, and Selecting
- Editing and Sorting
- Checking Spelling and Grammar
- Formatting



HERE'S ONE WAY

TO GET PHOTO REALISTIC COLOR FROM CANON.

HERE'S ANOTHER.

Photo-realistic color has always been a focus for us at Canon.® Which explains why our latest development in Bubble Jet™ printing is photo-realistic color that's simply incredible. And why, with just a point-and-click, our new Canon Creative 2 software makes it incredibly simple to create everything from greeting cards, to brochures, to T-shirt transfers. For more information about our new line of Color Bubble Jet printers, call 1-800-848-4123, Extension 444. Or visit our web site at http://www.ccsi.canon.com. You'll find our printers nothing less than simply incredible and incredibly simple.

Canon

©1996 Canon Computer Systems, Inc. Canon is a registered trademark and Bubble Jet is a trademark of Canon Inc. CCSI, 2995 Redhill Ave., Costa Mesa, CA 92626. In Canada, call 1-800-263-1121, Extension 444.

PC WORLD

MARCH

VOLUME 15 ◆ NUMBER 3 ◆ MULTIMEDIA EDITION

COVER STORY

121 **UNDOCUMENTED SECRETS: 101 TIPS FOR WINDOWS 95, NT, AND 3.X**

HOW-TO Whether it's Windows 95, Win 3.1, or NT 4.0, isn't there always something you wish would work better? Here are the best secret tips and tricks for all versions of Windows.

FEATURES

144 **CHEAP SHOTS**

REVIEW Some digital cameras are now priced as low as $199. We tested ten models to see if they can really save you a trip to the photo kiosk.

164 **LOTUS SMARTSUITE 97: NOW SMART ENOUGH?**

PREVIEW SmartSuite diehards need no longer live with half an upgrade. New Windows 95 versions of 1-2-3 and Organizer help make SmartSuite faster, richer in features, and Web-savvy.

180 **VIRUS KILLERS: THE BEST SOFTWARE FOR PROTECTING YOUR PC**

REVIEW An effective antivirus utility is essential. Our Best Buy's features put it a cut above other Win 95 packages.

SPECIAL REPORT

THE WEB AND YOUR BUSINESS

105 **THE PROS TAKE OVER**

New Pentium Pros from HP sweep top positions on both the Workgroup and Enterprise Server charts.

109 **BUILD YOUR OWN SECRET INTRANET**

Eager to set up a small intranet at work? Here's how to do it yourself.

121

246-M1

Additional material available on PC World Online

MULTIMEDIA

246-M1 **TITLE REVIEWS**

Real-time World War II gaming strategy in Command & Conquer: Red Alert; interactive horror in A Puzzle of Flesh; and a unique sci-fi universe in Rama.

246-M8 **HARDWARE REVIEWS**

The latest Top 5 CD-ROM drives and the Top 5 sound boards.

246-M11 **Q&A**

Tips to solve your multimedia woes.

COVER *Digital composition by Nick Fain*

TOP OF THE NEWS

60 BROWSER BATTLE LINES
Our first look at Netscape's Communicator and Microsoft's Internet Explorer 4 finds similar features but different strategies.

64 BROWSER ACCELERATORS
These programs goose browser performance, but two early products we tested gave mixed results.

65 NEW INTEL PACKAGING MEANS EASIER, FASTER UPGRADES
The company's future CPUs will be mounted on processor cards.

66 WEB PERFORMANCE ENHANCERS
Products that "push" Web content to your PC are resource hogs and, so far, not very useful.

72 IS AN LCD MONITOR IN YOUR FUTURE?
They're getting better and cheaper.

164

144

NEW PRODUCTS

78 PGPcookie.cutter, PGPmail 4.5 Web and e-mail security utilities
79 Philips Velo 1 Windows CE handheld PC
80 MaxiSound Home Studio 64, Home Theater 64 sound cards
80 Panasonic Big 5 SQ-TC510N CD-ROM changer
82 IBM VoiceType Simply Speaking voice-recognition software
82 Netopia Virtual Office
86 Magic Cap for Windows 95
86 Microsoft Network
88 Active-Office for Windows 95
88 Partition Magic 3.0
92 Fujitsu, Xerox small-office printers
94 Cardinal Voyager 33.6-kbps modem
94 Olympus D-300L digital camera
99 FlowCharter 7
99 Policies Now 5.0
101 SamePage 2.0 intranet software
103 GrabIt, Snappy Video SnapShot 2.1 video capture software

180

TOP 100

197 FIRST MMX PENTIUMS ARRIVE
TOP 100 We tested the first MMX Pentiums and one, the Dell Dimension XPS M200s, shot to the top of the Power Desktops chart. Despite the absence of MMX-savvy software, all models registered impressive performance gains.

200 POWER DESKTOPS
TOP 20 MMX PCs from Dell and Quantex and Pentium Pro-200s from HP and IBM are among the heavyweights debuting on this month's Power Desktops chart.

210 BUDGET DESKTOPS
TOP 20 Prices for Pentium-133 systems are dropping like lead balloons. P-133s priced at under $1900 from Dell, Micron, and Gateway are the top three Budget Desktops.

218 NOTEBOOKS
TOP 20 Subnotes from Toshiba and HP are the latest power notebooks on the chart; a $200 cut makes the $1799 Digital HiNote VP our number one budget pick.

228 WIN A QUANTEX PENTIUM-200 MMX PC
CONSUMER FEEDBACK How satisfied are you with your PC? Fax in this survey for a chance to win a Quantex QP5/200MMX SM-3, a P-200 MMX from the Top 20 charts.

231 WORKGROUP PRINTERS
TOP 10 Added RAM drives the IBM Network Printer 12 to the top of the monochrome workgroup printer chart.

235 17-INCH MONITORS
TOP 10 Mitsubishi's Diamond Pro 87-XTM and the sub-$700 ViewSonic 17GS and Princeton Graphic EO75 make the chart.

237 GRAPHICS BOARDS
TOP 10 High-res color is the strength of the pricey Diamond Stealth 3D 3400XL, while a low $139 price helps recommend the Hercules Dynamite 128/Video card.

239 MODEMS
TOP 10 A slew of new modems makes the chart. Our number ones: Practical Peripherals' PC288LCD V.34 external and Motorola's Montana 33.6 PC Card units.

HERE'S HOW

248 **ANSWER LINE**
Adding a new hard disk and making it your C: drive; connecting PCs with twisted-pair cable.

252 **WINDOWS TIPS**
Avoiding Win 95 hang-ups when you shut down; printing out the whole Help file; untangling your log-on.

258 **SPREADSHEETS**
Identifying the highest average; adding flags in Excel and Quattro Pro.

260 **WORD PROCESSING**
Reformatting text globally; selecting parts of a table in Word.

264 **DATABASE TIPS**
Making exceptions to rules in Access and Approach with If functions.

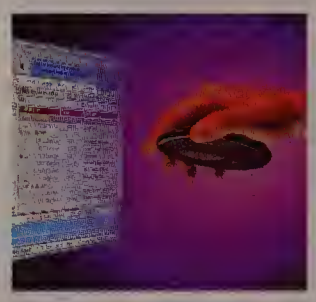
266 **INTERNET TIPS**
Saving a Web page with graphics intact; online investment sites.

270 **HARDWARE TIPS**
Getting the right resolution and color from your monitor and graphics card.

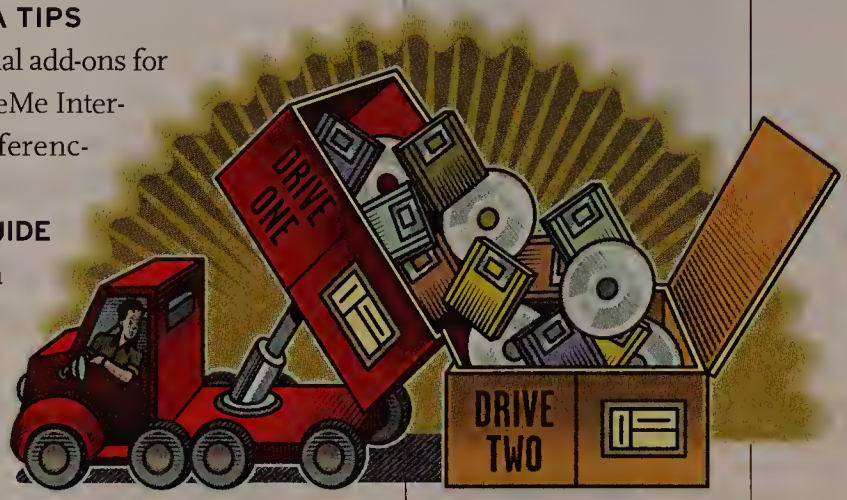
272 **MULTIMEDIA TIPS**
Essential add-ons for CU-SeeMe Internet videoconferencing software.

274 **UPGRADE GUIDE**
Build a Windows 95 network, step-by-step.

45



241



248

@HOME

241 **@HOME PRODUCTS**
Software for planning a road trip; automated TV channel surfing; battle of the encyclopedias.

242 **KEEPING UP**
Web sites and services for consumers.

244 **TOP 5 HOME PCS**
Dell's Dimension P200v is still our pick for best personal computer for the home; meanwhile, a super-cheap Monorail compact PC just misses the chart.

246 **HOME OFFICE**
Steve Bass has a moral dilemma: Net.Jet makes Web browsing superfast by hogging access to the sites you visit.

51

DEPARTMENTS

15 **UP FRONT** The end of Web browsing?

21 **LETTERS** Readers sound off on testing non-Intel PCs, Micron service and support.

29 **CONSUMER WATCH** The best Web sites for consumer information and advocacy.

45 **PCW ADVOCATE** Recycled software; bundled software might not be as good as retail.

51 **REAL SOLUTION** Finding the job of your dreams on the Internet.

55 **BUGS AND FIXES** More NT bugs; fix AVI in Helix Hurricane; LapLink, WebEx upgrades.

312 **FULL DISCLOSURE** The perfect palmtop.

RESOURCES

12 **HOW TO CONTACT PC WORLD**

32 **COMING UP**

275 **MAIL-ORDER SHOPPING GUIDE**

291 **PC WORLD CATALOG**

303 **READER SERVICE CARD**

305 **ADVERTISER INDEX**

308 **EDITORIAL PRODUCT INDEX**

PCW ONLINE

THE BEST THINGS IN LIFE ARE FREE (OR SHAREWARE)

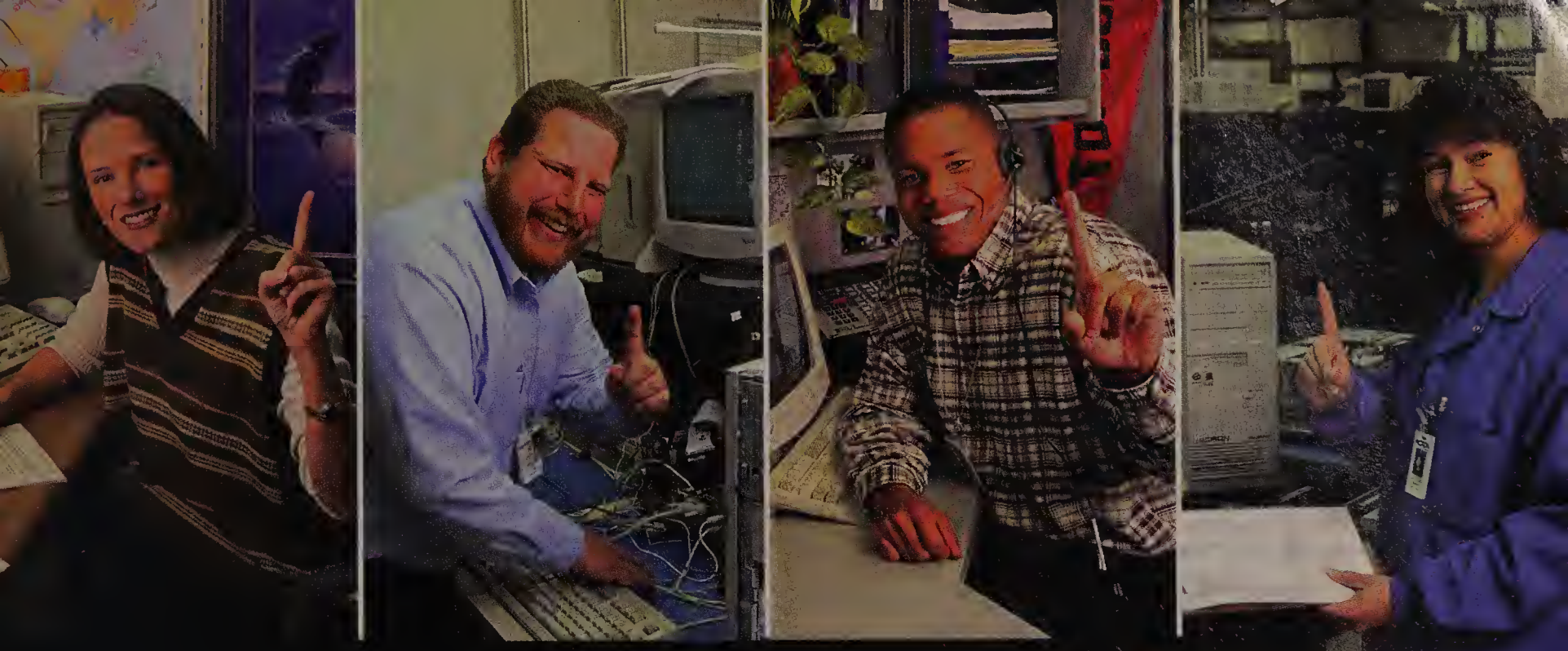
REVIEW With countless free downloadable software programs, which ones stand out? We review 25 of the best free and shareware products, including utilities, games, and more.
http://www.pcworld.com/mar97/free

COMPETITIVE CONNECTIONS

REVIEW Multiplayer games let you challenge opponents anywhere in the world. We checked out titles that use new technologies to jack up the stakes in gaming.
http://www.pcworld.com/mar97/multiplayer

EVERY MONTH ON PC WORLD ONLINE
http://www.pcworld.com

- The latest news and daily audio reports on hardware, software, and technology.
- The Interactive Buying Guide to help you find the PC that meets your needs.
- The Web's most comprehensive how-to database for tips and shortcuts.
- The new PC World Annex, with games, reviews, columns, the latest industry gossip, a calendar of computing events, interactive interviews, and job listings. ■



YOU DECIDED
WE'RE NUMBER ONE

RELIABILITY & SERVICE PC WORLD

For Reliability and Service, Micron is Unsurpassed.

Want proof? Listen to what the readers of *PC World*® magazine had to say when they rated computer companies for reliability and service (*PC World*, Dec. 1996).

- *For the second year in a row, Micron was recognized as the top maker of reliable PCs and provider of customer service. And again Micron was rated the best PC company overall.*
- *Extremely reliable, Micron systems had fewer reported problems than other PC brands. In fact, Micron boasts one of the lowest problem rates in the industry.*
- *Not only did owners of Micron systems report few problems with their PCs, they also applauded Micron's competent support staff as the best at problem resolution.*

No wonder Micron PCs were rated the best for user satisfaction. Simply put, owners of Micron PCs have less to worry about.

Extremely reliable. Top-notch service. Award-winning performance. Micron has you covered. Call now to order your new Micron PC.

OVERALL	RELIABILITY	SERVICE
BEST	**BEST**	**BEST**
MICRON DELL	MICRON DELL APPLE COMPAQ HEWLETT-PACKARD	MICRON DELL
GOOD	**GOOD**	**GOOD**
APPLE AT&T COMPAQ DIGITAL HEWLETT-PACKARD	AT&T DIGITAL	DIGITAL HEWLETT-PACKARD
FAIR	**FAIR**	**FAIR**
GATEWAY 2000 IBM QUANTEX	GATEWAY 2000 IBM NEC	ACER APPLE AT&T COMPAQ GATEWAY 2000 IBM MIDWEST MICRO QUANTEX

PC World Reliability & Service Survey—*PC World*, December 1996

SERVICE & RELIABILITY PC MAGAZINE READERS' CHOICE — July 1994

SERVICE & RELIABILITY PC MAGAZINE READERS' CHOICE — January 1995

RELIABILITY & SERVICE PC WORLD — December 1995

RELIABILITY & SERVICE PC WORLD — December 1996

Micron Power℠ Warranty & Support

- 5-year limited warranty on microprocessor and main memory
- 3-year limited parts-only system warranty
- 1-, 2- or 3-year optional on-site service agreement for Micron desktop systems
- 30 days of free Micron-supplied software support for Micron desktop systems
- 30-day money-back policy
- 24-hour technical support

The foregoing is subject to and qualified by Micron's standard limited warranties and terms and conditions of sale. Terms and conditions of sale my vary for specific configurations. Copies of the limited warranties may be obtained on our Web site or by calling Micron.

• 900 E. Karcher Road, Nampa, ID 83687 • Mon-Fri 6am-10pm Sat 7am-5pm (MT)

• International Sales Hours: Mon-Fri 6am-7pm (MT) • Phone: 208-893-3434 • Fax: 208-893-3424 • Purchase Order Fax: 208-893-8992

• Technical Support Available 24 Hours / 7 Days • Technical Support Phone: 888-FIX-MYPC • Technical Support E-mail: techsupport.meic@micron.com

© 1997 Micron Electronics, Inc. All rights reserved. Micron Electronics is not responsible for omissions or errors in typography or photography. All purchases are subject to availability. Prices and specifications may be changed without notice. Prices do not include shipping and handling. 30-day money-back policy does not include return freight and original shipping/handling charges, applies only to Micron brand products and begins from date of shipment. All sales are subject to Micron Electronics' current terms and conditions of sale. Lease prices based on 36-month lease. Intel, Intel Inside and Pentium are registered trademarks of the Intel Corporation. Microsoft, Windows, Windows NT and the Windows logo are registered trademarks of Microsoft Corporation. All other service marks, trademarks and registered trademarks are the property of their respective companies.
ADV-010-PCWD-9703-0131

Circle 149 on reader service card

MICRON™ ELECTRONICS, INC.

800-776-4506

http://www.mei.micron.com

What Will PCs Be Like In The Future?

To Find Out, Look Into the Next Millennia

The PC of the future has arrived. Micron Electronics™ has integrated its award-winning Millennia platform with the new MMX™ technology from Intel. Introducing the Millennia MXE, the latest system in the Millennia series that's perfect for the most uncompromising home or office user. The Millennia MXE delivers a significant increase in processing speed over classic Pentium-based systems, improving your productivity. Featuring the exciting new MMX technology, the Millennia MXE accelerates existing and emerging multimedia and communication software, enriches your Internet experience, and dramatically improves graphics, video and audio quality. And the Millennia MXE is fully compatible with all your existing applications. That means you don't have to upgrade your software until you're ready. Plus the Millennia MXE reduces your cost of ownership. With the MMX technology onboard, you can benefit from economical software solutions for multimedia and communication enhancements that currently require expensive hardware devices. Improve your productivity. Experience clear, colorful graphics. Enjoy the Internet more. Call and order your new Millennia MXE and get the most advanced PC available.

MMX™ intel inside® pentium® PROCESSOR

NEW — November 1996, Millennia Pro2 400 Plus — Best Buy
NEW — November 1996, Millennia Pro2 400 Plus — 1996 Finalist MVP PCComputing
NEW — June 25, 1996, Millennia P166 — PC Magazine Editors' Choice
NEW — June 25, 1996, Millennia P133 — PC Magazine Editors' Choice
NEW — August 1996, Millennia TransPort P133 — PC Magazine Editors' Choice
NEW — December 1996, Best Overall Company — PC World
NEW — December 1996, Best Service — PC World
NEW — December 1996, Best Reliability — PC World
Readers' Choice for Customer Service and Reliability, 1994 and 1995 — PC Magazine
February 1996, Home MPC P90 — PC World
Designed for Microsoft Windows 95
Microsoft Windows NT Ready-to-Run

In the past two years, Micron Electronics™ has won close to two hundred awards for product performance, reliability and customer service.

ADVANCED DESKTOP SOLUTIONS

Millennia™ MXE P166

Intel 166MHz Pentium® processor with MMX™

- 512KB pipeline burst cache, flash BIOS
- 12X EIDE CD-ROM drive, 3.5" floppy drive
- **100MB Iomega® Zip™ drive**
- Sound Blaster® 32 Wavetable 3D stereo sound card with speakers
- PCI 64-bit 3D video, MPEG, 4MB EDO RAM
- Tool-free minitower or desktop
- Microsoft® Mouse, 104-key keyboard
- Microsoft Windows® 95 and MS® Plus! CD
- Multimedia Xcitement Pak: POD™, Adobe® PhotoDeluxe™, Billboard Music Guide™, Blockbuster Entertainment Guide™ and Encarta Turnabout™
- 5-year/3-year Micron Power℠ warranty

• 16MB EDO RAM
- 1.6GB EIDE hard drive
- 15" Micron 15FGx, .28dp (13.7" display)
- Microsoft Works 4.0 CD

$1,999 Bus. lease $68/mo.

• 32MB EDO RAM
- 2.5GB EIDE hard drive
- 15" Micron 15FGx, .28dp (13.7" display)
- Microsoft Office CDs

$2,299 Bus. lease $78/mo.

• 64MB EDO RAM
- 3.1GB EIDE hard drive
- 17" Micron 17FGx, .26dp (15.8" display)
- Microsoft Office CDs

$2,899 Bus. lease $99/mo.

With Intel 200MHz Pentium processor with MMX.....add $200

Millennia™ MXE P200 Plus

Intel 200MHz Pentium processor with MMX

- 512KB pipeline burst cache, flash BIOS
- PCI 32-bit Ultra SCSI Fast-20 controller
- 12X SCSI CD-ROM drive, 3.5" floppy drive
- **100MB Iomega Zip drive**
- Sound Blaster 32 Wavetable 3D stereo sound card with speakers
- PCI 64-bit 3D video, MPEG, 4MB EDO RAM
- Tool-free minitower or desktop
- Microsoft Mouse, 104-key keyboard
- Microsoft Windows 95 & MS Plus! CD
- Multimedia Xcitement Pak: POD, Adobe PhotoDeluxe, Billboard Music Guide, Blockbuster Entertainment Guide and Encarta Turnabout
- 5-year/3-year Micron Power warranty

• 16MB EDO RAM
- 2GB Ultra SCSI hard drive
- 15" Micron 15FGx, .28dp (13.7" display)
- Microsoft Works 4.0 CD

$2,899 Bus. lease $99/mo.

• 32MB EDO RAM
- 4GB Ultra SCSI hard drive
- 15" Micron 15FGx, .28dp (13.7" display)
- Microsoft Office CDs

$3,399 Bus. lease $116/mo.

• 64MB EDO RAM
- 9GB Fast SCSI-2 hard drive
- 17" Micron 17FGx, .26dp (15.8" display)
- Microsoft Office CDs

$4,999 Bus. lease $170/mo.

With Intel 166MHz Pentium processor with MMX.....subtract $100

ECONOMICAL DESKTOP SOLUTIONS

Millennia™ LXA P166

Intel 166MHz Pentium® processor

- 512KB pipeline burst cache, flash BIOS
- 12X EIDE CD-ROM drive, 3.5" floppy drive
- PCI 64-bit 3D video, MPEG, 2MB EDO RAM
- Tool-free minitower or desktop
- Microsoft® Mouse, 104-key keyboard
- Microsoft Windows® 95 and MS® Plus! CD
- Microsoft Works 4.0 CD
- SystemSoft® SystemWizard™ application for online problem resolution
- 5-year/3-year Micron Power℠ warranty

• 16MB EDO RAM
- 1.6B EIDE hard drive
- 15" Micron 15FGx, .28dp (13.7" display)

$1,599 Bus. lease $54/mo.

• 32MB EDO RAM
- 2.5GB EIDE hard drive
- 17" Micron 17FGx, .26dp (15.8" display)

$2,099 Bus. lease $71/mo.

With Intel 200MHz Pentium processor.....add $200

intel inside pentium PROCESSOR

POWER DESKTOP SOLUTIONS

Millennia™ Pro2 180

Intel 180MHz Pentium® Pro processor

- Supports dual Intel 180MHz Pentium Pro processors
- 256KB internal L2 cache, flash BIOS
- 12X EIDE CD-ROM drive, 3.5" floppy drive
- 16-bit stereo sound & speakers
- **PCI 64-bit 3D video, MPEG, 4MB EDO RAM**
- Tool-free mini tower or desktop
- Microsoft Mouse, 104-key keyboard
- Microsoft Windows® 95 & MS® Plus! CD
- 5-year/3-year Micron Power℠ warranty

• 16MB EDO RAM
- 2.5GB EIDE hard drive
- 15" Micron 15FGx, .28dp (13.7" display)
- Microsoft Works 4.0 CD

$2,199 Business lease $75/month

• 32MB EDO RAM
- 3.1GB EIDE hard drive
- 17" Micron 17FGx, .26dp (15.8" display)
- Microsoft Office CDs

$2,699 Business lease $92/month

- With second Intel 180MHz Pentium Pro processor.....add $599*
- With Microsoft Windows NT® Workstation 4.0.....add $99

* Second processor requires Microsoft Windows NT Workstation 4.0

Millennia™ Pro2 400 Plus

Dual Intel 200MHz Pentium® Pro processors

- 256KB internal L2 cache, flash BIOS
- PCI 32-bit Ultra SCSI Fast-20 controller
- 12X SCSI CD-ROM drive, 3.5" floppy drive
- 16-bit stereo sound & speakers
- **PCI 64-bit 3D video, MPEG, 4MB EDO RAM**
- Tool-free mini tower or desktop
- Microsoft Mouse, 104-key keyboard
- Microsoft Windows NT Workstation 4.0 CD
- Microsoft Office CDs
- 5-year/3-year Micron Power warranty

• 32MB EDO RAM
- 2GB Ultra SCSI hard drive
- 15" Micron 15FGx, .28dp (13.7" display)

$3,899 Bus. lease $133/mo.

• 64MB EDO RAM
- 4GB Ultra SCSI hard drive
- 17" Micron 17FGx, .26dp (15.8" display)

$4,749 Bus. lease $162/mo.

• 128MB EDO RAM
- 9GB Fast SCSI-2 hard drive
- 21" Micron 21FGx, .26dp (20.0" display)

$6,999 Bus. lease $220/mo.

intel inside PENTIUM® PRO PROCESSOR

Micron Power℠ Warranty & Support

- 5-year limited warranty on microprocessor and main memory
- 3-year limited parts-only system warranty
- 1-, 2- or 3-year optional on-site service agreement for Micron desktop systems
- 30 days of free Micron-supplied software support for Micron desktop systems
- 30-day money-back policy
- 24-hour technical support

The foregoing is subject to and qualified by Micron's standard limited warranties and terms and conditions of sale. Terms and conditions of sale may vary for specific configurations. Copies of the limited warranties may be obtained on our Web site or by calling Micron.

MICRON ELECTRONICS, INC.

• 900 E. Karcher Road, Nampa, ID 83687 • Mon-Fri 6am-10pm Sat 7am-5pm (MT)

• International Sales Hours: Mon-Fri 6am-7pm (MT) • Phone: 208-893-3434 • Fax: 208-893-3424 • Purchase Order Fax: 208-893-8992

• Technical Support Available 24 Hours / 7 Days • Technical Support Phone: 888-FIX-MYPC • Technical Support E-mail: techsupport.meic@micron.com

International Sales 208-893-8970 — International Fax 208-893-7393 — Tollfree from Mexico 95-800-708-1755 — Tollfree from Canada 800-708-1758 — Tollfree from Puerto Rico 800-708-1756

©1997 Micron Electronics, Inc. All rights reserved. Micron Electronics is not responsible for omissions or errors in typography or photography. All purchases are subject to availability. Prices and specifications may be changed without notice; prices do not include shipping and handling. 30-day money-back policy does not include return freight and original shipping/handling charges, applies only to Micron brand products and begins from date of shipment. All sales are subject to Micron Electronics' current terms and conditions of sale. Lease prices based on 36-month lease. The Intel Inside Logo and Pentium are registered trademarks and MMX is a trademark of Intel Corporation. Microsoft, Windows, Windows NT and the Windows logo are registered trademarks of Microsoft Corporation. All other service marks, trademarks and registered trademarks are the property of their respective companies. ADV-007PCWD9703-0131

800-245-3709

http://www.mei.micron.com

Circle 149 on reader service card

BUSINESS IS WAR.
BRING A HOWITZER.

INTRODUCING THE UNBEATABLE NEW LINE OF MICRON NOTEBOOKS.

Do battle with two new notebooks that take the award-winning Micron TransPort™ design to new heights. The Micron TransPort XPE offers the latest in portable technology built on the new Mobile Intel Pentium® processor with MMX™ technology. You get unprecedented multimedia capability, including dynamic full-motion video, making this notebook the first true desktop replacement. The TransPort MRX gives you full-feature multimedia in an affordable notebook. Two aggressive new tools for today's business.

MICRON TRANSPORT XPE

THE TRUE NO-COMPROMISE DESKTOP REPLACEMENT.

2.1GB removable hard drive
12.1" active matrix color display, 800 x 600
Motorola® Montana 33.6 fax/modem

166MHz Mobile Intel Pentium processor with MMX
48MB EDO RAM (80MB max.)
$4,999
Bus. lease $170/mo.

150MHz Mobile Intel Pentium processor with MMX
32MB EDO RAM (80MB max.)
$4,599
Bus. lease $156/mo.

MICRON TRANSPORT MRX

FULL-FEATURE MULTIMEDIA MADE AFFORDABLE.

133MHz Mobile Intel Pentium processor
16MB EDO RAM (48MB max.)
1.4GB removable hard drive
11.3" active matrix color display, 800 x 600
$3,199
Bus. lease $109/mo.

COMMON FEATURES

Intel 430MX Mobile PCI chip set
256KB L2 pipeline burst cache
PCI graphics accelerator (1MB EDO RAM in MRX, 2MB VRAM in XPE)
Pick-a-Point™ dual pointing devices
Sound Blaster® 16-bit stereo sound
Built-in stereo speakers and microphone
CardBus- and zoomed video-ready (XPE models only)
2 infrared ports, 1 front, 1 rear
S-video & NTSC-video capability
Built-in game port (XPE models only)
2 modular expansion bays (8X CD-ROM drive, hard drive, 3.5" floppy drive, lithium-ion battery)
Custom nylon carrying case
Microsoft® Windows® '95 and MS® Plus! CDs
Microsoft Office CDs
5-year/3-year limited Micron Power℠ warranty

OPTIONS

MicronDock™ multimedia port replicator
Micron Executive desktop package
3COM® PCMCIA ethernet adapter, 10-base-T
Samsonite® leather carrying case upgrade
2nd intelligent lithium-ion battery
2nd 1.4GB modular hard drive
2nd 2.1GB modular hard drive
16MB EDO RAM upgrade
32MB EDO RAM upgrade
166MHz Mobile Intel Pentium processor with MMX upgrade (XPE models only)
3GB primary hard drive upgrade (XPE models only)
2nd 3GB modular hard drive (XPE models only)
Motorola Montana 33.6 fax/modem

intel inside pentium® PROCESSOR

MMX™ intel inside pentium® PROCESSOR

MICRON POWER℠ WARRANTY

5-year limited warranty on microprocessor and main memory.
3-year limited system warranty.

CALL NOW FOR DETAILED PRICING, OPTIONS AND FREE PRODUCT-DEMO DATA SHEET.

Micron Sales Hours:
Mon-Fri 6am-10pm, Sat 7am-5pm (MT)
Technical Support Available 24 Hours A Day-7 Days A Week
Tollfree from Mexico: 95-800-708-1755 • Tollfree from Canada: 800-708-1758
Tollfree from Puerto Rico: 800-708-1756 • International Fax: 208-893-7393
International Sales: 208-893-8970

©1997 Micron Electronics, Inc. All rights reserved. Micron Electronics is not responsible for omissions or errors in typography or photography. All purchases are subject to availability. Prices and specifications may be changed without notice; prices do not include shipping and handling. 30-day money-back policy does not include return freight and original shipping/handling charges, applies only to Micron brand products and begins from date of shipment. All sales are subject to Micron Electronics' current terms and conditions of sale. Lease prices based on 36-month lease. The Intel Inside Logo and Pentium are registered trademarks and MMX is a trademark of Intel Corporation. Microsoft, Windows, Windows NT and the Windows logo are registered trademarks of Microsoft Corporation. All other service marks, trademarks and registered trademarks are the property of their respective companies

MICRON

800•421•894

www.mei.micron.com

MICRON ELECTRONICS, INC.

Circle 145 on reader service card

PC WORLD

EDITORIAL

EDITORIAL DIRECTOR Philip Lemmons

EDITOR IN CHIEF Cathryn Baskin

EDITOR IN CHIEF, PC WORLD ONLINE Russell Glitman

MANAGING EDITOR Luis Camus

ART DIRECTOR Robert Kanes

EXECUTIVE EDITORS Eric Bender, Tracey Capen, Charles Piller, Daniel Tynan

SENIOR NEWS EDITOR Michael Desmond
SENIOR ONLINE EDITOR Yael Li-Ron
SENIOR REVIEWS EDITOR Carla Thornton
SENIOR TECHNICAL EDITOR Karl Koessel
SENIOR @HOME EDITOR Christina Wood
EAST COAST EDITOR Randy Ross

ASSISTANT MANAGING EDITOR Anne Kandra

SENIOR ASSOCIATE EDITORS Yardena Arar, Rex Farrance, Bryan Hastings, Ann Kremers, Michael S. Lasky, Harry McCracken, Lincoln Spector

ASSOCIATE EDITORS Brad Grimes, Laurianne McLaughlin, Melissa Riofrio, JoAnne Robb
ONLINE EDITOR, INTERACTIVE SERVICES Dennis Sheridan
TECHNICAL EDITOR Shane Rau
STAFF EDITORS John Goddard, Eric Hellweg, Aoife M. McEvoy
NEW MEDIA EDITOR Tracy Swedlow
ONLINE STAFF EDITOR Glenn McDonald
ASSISTANT EDITORS Allyson Bates, Angela Freeman
EDITORIAL RESEARCHER Julie Campagna

COPY CHIEF Richard Johnson
SENIOR COPY EDITORS Barbara Lewis, Marla Miyashiro
COPY EDITORS Stephen Compton, Kim Saccio-Kent, Hon Walker

EDITORIAL PRODUCTION ASSOCIATE Henry Pham

ASSISTANT TO EDITORIAL DIRECTOR Linda L. Grubbs
ADMINISTRATIVE ASSISTANTS Yvette Joplin, Heidi AZ Wolff
BUSINESS MANAGER Heidi Anderson
FOUNDER David Bunnell
FOUNDING EDITOR Andrew Fluegelman

ART AND DESIGN

ASSOCIATE ART DIRECTORS Barbara Adamson, Greg Silva
SENIOR DESIGNERS Kate Godfrey, Carolyn Perot
SENIOR DESIGNER, INFOGRAPHICS Sandra Kelch
DESIGNER Beth Kamoroff
ASSISTANT DESIGNER, INFOGRAPHICS Robin Briskin
PRODUCTION ARTIST Marlene Tobias

MULTIMEDIA EDITION

SENIOR ASSOCIATE EDITOR Kimberly Stein

CONTRIBUTING EDITORS

Steve Bass, George Campbell, Scott Dunn, Roberta Furger, Judy Heim, Richard Jantz, Stephen Manes, James A. Martin, Brian McWilliams, Stan Miastkowski, Celeste Robinson, Richard Scoville, Scott Spanbauer, Kirk Steers

PC WORLD TEST CENTER

TEST CENTER DIRECTOR Julian Milenbach
MANAGER, PERFORMANCE TESTING Ulrike Diehlmann
MANAGER, USABILITY TESTING Susan Silvius
PERFORMANCE ANALYSTS Jeffrey Kuta, Kevin Mitchell, Mike Salayko
TEST CENTER COORDINATORS Andrew Hawn, Julian Weatherby

NETWORK WORLD-PC WORLD TEST CENTER DIRECTOR William L. Rinko-Gay

ONLINE SERVICES GROUP

PUBLISHER Thomas Gewecke
DIRECTOR, BUSINESS DEVELOPMENT Sara Frankel
DIRECTOR, CIRCULATION Noël McLaughlin
DIRECTOR, MARKETING Scott Danish
DIRECTOR, OPERATIONS Nancy H. Miller
DIRECTOR, PRODUCT DEVELOPMENT Adam Block
MANAGER, ONLINE DESIGN Jonas Höglund
ONLINE PRODUCERS Carla Lieberman, Licia Slimon
AUDIENCE DEVELOPMENT MANAGER Declan Fox
CONTENT ENGINEER Nick Van Cleve
PRODUCTION COORDINATOR Paul O'Neil
PRODUCERS, PRODUCT DEVELOPMENT Shoshana Berger, Greg Weinger
ASSISTANT TO THE PUBLISHER AND SPECIAL PROJECTS MANAGER Martyne Pagé
FLUEGELMAN INTERN Amy Ng

USER GROUP BOARD

Steve Bass, Pasadena IBM Users Group; Roger Bender, Microcomputer Managers Association; Jack Bolton, Atlanta PC User's Group (APCUG); Brian Camenker, Boston Computer Society; Rollie Cole, APCUG; Mary Dolce, Chicago Computer Society; Sandy Frunzi, Las Vegas PC User Group (LVPCUG); Al Harrison, Houston Area League PC Users; David Hoffman, NYPC; Joseph Rigo, NYPC; Robert Rodrigue, MicroLink PC User Group; Kenny Wynn, LVPCUG

PCW COMMUNICATIONS

PRESIDENT AND CHIEF EXECUTIVE OFFICER Richard J. Marino
PUBLISHER J. Samuel Huey
VP AND ASSOCIATE PUBLISHER Jeff Edman
VP AND CHIEF FINANCIAL OFFICER Vicki Peilen
VP, CIRCULATION Shawne Burke Pecar
VP, HUMAN RESOURCES Richard Willoughby
VP, MANUFACTURING Linda Manes Goodwin
VP, RESEARCH Cheryl Brink

HOW TO CONTACT PC WORLD

SUBSCRIPTION SERVICES

PC World Subscriber Services, P.O. Box 55029, Boulder, CO 80322-5029
INTERNET: http://www.pcworld.com/resources/subscribe/customer_service/
E-MAIL: pcwhelp@neodata.com
PHONE: In U.S. other than CO 800/234-3498
In CO and outside U.S. 303/604-1465
New orders 800/825-7595

MAIL AND PC WORLD ONLINE

PC World Editorial, 501 Second St. #600, San Francisco, CA 94107
PHONE: 415/243-0500 **FAX:** 415/442-1891
AMERICA ONLINE: keyword pc world
COMPUSERVE: go pcworld
MICROSOFT NETWORK: go pcworld
PRODIGY: jump pc world
WORLD WIDE WEB: http://www.pcworld.com
INTERNET: letters@pcworld.com

QUESTIONS AND SUBMISSIONS

Send material electronically to the appropriate forum on PC World Online (for example, send *Answer Line* submissions to the Answer Line forum); to the online address listed below; or mail them to *PC World*. Include your name, city, and state in all correspondence. We reserve the right to edit letters.

PC World pays $50 for published *Here's How* tips and questions; accepted submissions acknowledged by payment. Please note that editors cannot guarantee personal responses to questions that are not posted to *PC World*'s online forums.
LETTERS: letters@pcworld.com
CONSUMER WATCH: consumerwatch@pcworld.com
PCW ADVOCATE: advocate@pcworld.com
REAL SOLUTION: real_problems@pcworld.com; 415/978-3212; 415/442-1891 (fax, Attn: Real Problem). *PC World* pays $300 per published column.
BUGS AND FIXES: bugs@pcworld.com
ANSWER LINE: scott_spanbauer@pcworld.com
WINDOWS TIPS: pcwsdunn@aol.com
SPREADSHEET TIPS: richard_scoville@pcworld.com
WORD PROCESSING TIPS: george_campbell@pcworld.com
DATABASE TIPS: celeste_robinson@pcworld.com
INTERNET TIPS: judy_heim@pcworld.com
HARDWARE TIPS: kirk_steers@pcworld.com
MULTIMEDIA TIPS: richard_jantz@pcworld.com
UPGRADE GUIDE: stan_miastkowski@pcworld.com
FULL DISCLOSURE: smanes@ix.netcom.com

NEW PRODUCT ANNOUNCEMENTS

Please address hardware, software, and Internet-related press releases to *New Products* at *PC World*, or call 415/978-3212.

REPRINTS AND PERMISSIONS

You must have permission before reproducing any material from *PC World*. Write to *PC World*, Reprints and Permissions, 501 Second St. #600, San Francisco, CA 94107; include a phone number. To order reprints of your company's editorial coverage in *PC World*, call 612/582-3810.

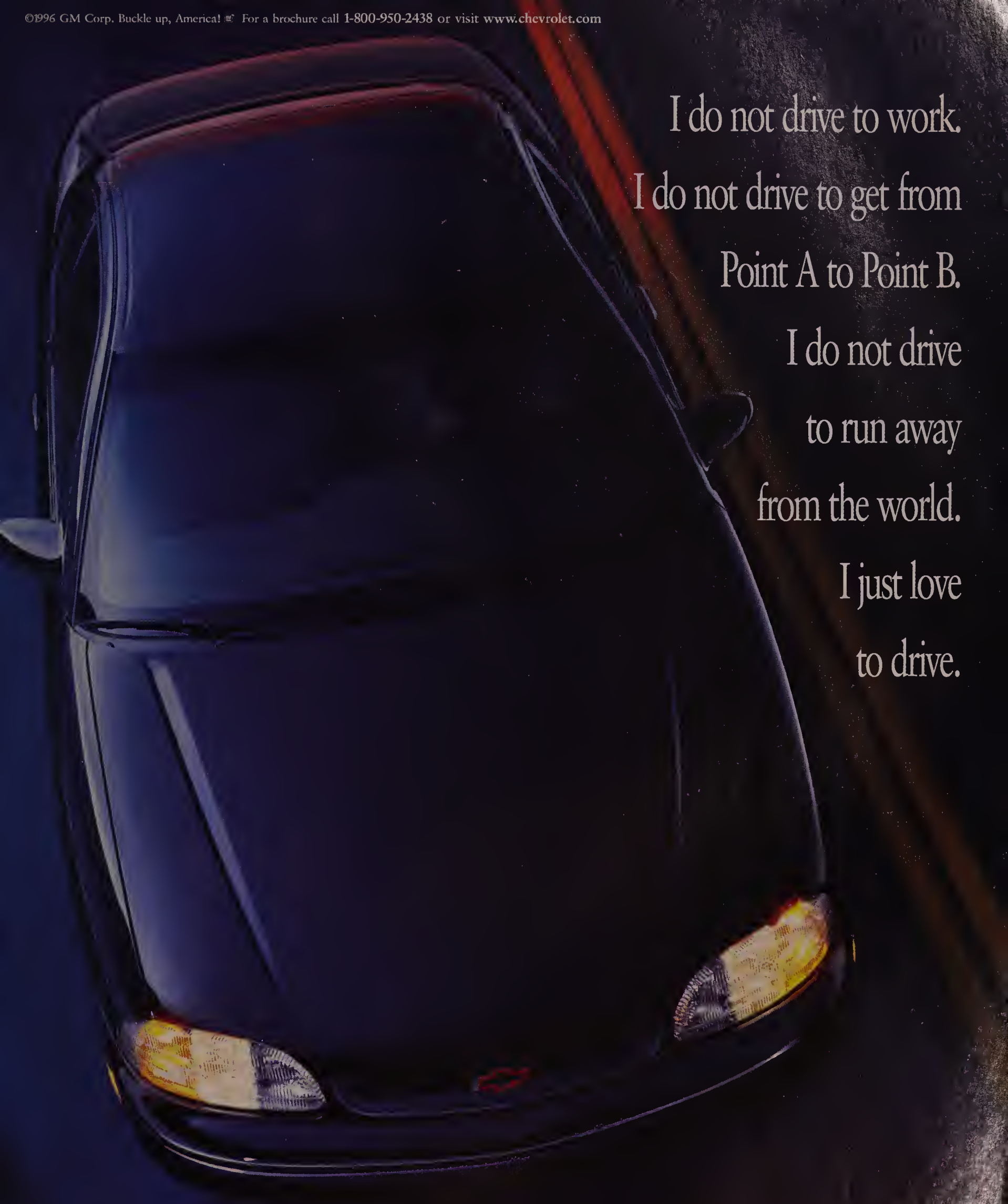
BACK ISSUES

PC World issues and article copies are available on microfilm and microfiche from UMI, 300 N. Zeeb Rd., Ann Arbor, MI 48106-1346; 800/521-0600.

MAILING LISTS

Occasionally we make our subscribers' names available to other companies whose products may interest you. If you wish to have your name excluded from these mailings, send a request with your mailing label to Subscriber Services, P.O. Box 55029, Boulder, CO 80322.

©1996 GM Corp. Buckle up, America! For a brochure call 1-800-950-2438 or visit www.chevrolet.com



With its 215-hp V6, quick-ratio power steering and specially tuned suspension, the Monte Carlo® Z34 is the car you can trust to make driving something more than just a means to an end. The 1997 Monte Carlo Z34. Personal space. From Genuine Chevrolet.

Genuine Chevrolet®
The Cars More Americans Trust.

PENTIUM® PRO
PROCESSOR

It's a power thing.

Introducing ALR's Evolution Dual6 DT with multiprocessing Pentium® Pro technology.

Starting at $2195

You know you need more power than a basic single processor system can offer. And that's why we've built the ALR Evolution Dual6 DT. As the newest member of our Pentium® Pro chip-based Evolution Dual6 family, this system packs the power and reliability of ALR's award-winning multiprocessing servers into a convenient desktop chassis.

The ALR Evolution Dual6 DT draws its technology from two award winning families... the ALR Evolution 6 series and the ALR Revolution server series.

How much power? Start off with over 50% more than an equally fast Pentium processor based system. Then multiply that power by two when you add a second Pentium Pro chip to your ALR Evolution Dual6 DT. We're talking the kind of number crunching, graphics churning power you need to handle Windows® NT™ 4.0 and all those awesome new 32-bit applications you've been looking at. And with up to four times the memory capacity of competitive Pentium Pro chip-based systems, you'll be able to run plenty of those applications at once.

ALRs' ActiveCPR in Action

12 integrated sensors constantly monitor vital aspects of processor operation. Out of spec readings trigger Central Processor Recovery procedures.

ActiveCPR warns network users of impending shutdown and initiates safe auto-shutdown of OS then takes suspicious processor off-line and then automatically reboots OS, recovering normal network operation.

Server watchdog automatically reboots OS in the event of a software crash.

*ALR's 5/36 warranty will protect your Evolution Dual6 DT well into the next millennium. We also back this system with a full year of on-site service.**

To keep all this power under control, we've invested the Evolution Dual6 DT with ALR InforManager, the same system management technology integrated into our award winning servers. We've even equipped it with ALR's ActiveCPR™, an advanced processor protection and auto-recovery subsystem.

It's the power you deserve. So why deny yourself any longer? Visit your local ALR reseller today, or call our toll free number.

ALR®
Advanced Logic Research, Inc.
1-800-444-4ALR
(ref# 5313)

Monitors sold separately * **Requires one time registration fee of $9.95. ALR is on the Internet - http://www.alr.com,** *CompuServe* - **GO ALRINC.** *& America Online* - **Keyword ALR** Advanced Logic Research, Inc. 9401 Jeronimo, Irvine, CA 92718 (714)581-6770 FAX: (714) 581-9240. Prices, configurations and specifications subject to change without notice. Systems shown with optional equipment. Pricing based on U.S. dollars. ALR is a registered trademark of Advanced Logic Research, Inc. Pentium logo and Intel Inside logos are trademarks of Intel Corporation. All other brand and product names are trademarks or registered trademarks of their respective owners. * Some restrictions apply- contact ALR for complete details. © 1997 by ALR

Circle 9 on reader service card

Web Broadcasts: The End of Browsing?

ACCORDING TO THE BUZZ these days, we're about to witness a revolution in the way we use the Web: from browsing, where users download or "pull" information from Web sites they visit, to broadcasting, where content providers "push" personalized information via the Internet directly to users' desktops. The result: No more struggling with URLs, search engines, and sites.

Given the frustrations of Web browsing, the "push" concept is simple and appealing: When you connect to the Web, push products work in the background to gather information in topic areas, or "channels," you've chosen and automatically send it to your PC, where you can read it whenever you like. The first and most successful of these products to date, the PointCast Network, broadcasts graphically rich news, weather, sports scores, financial data, even horoscopes and lottery numbers, for free. Following PointCast's lead, a raft of new push products that "netcast" content are in the works. Some follow the PointCast model, varying the types of information they deliver. Some function more like offline browsers, letting you subscribe to selected Web sites, then sending updates to your PC at intervals you select. (Contributing Editor Stan Miastkowski describes several of these products in *Top of the News*, page 66.)

Does all this **frantic activity** signal a **fundamental shift** in how we'll use the Web? **Not quite.**

Other products will let companies develop their own channels for broadcasting content to employees over an intranet. Marimba's Castanet, for example, will consist of a "transmitter" that resides on a server and sends information, Java applications, and software to "tuners" on individual desktops.

BIG PLANS FOR BROWSERS

NEWCOMERS AREN'T THE ONLY ones rushing to get broadcasting products to market. America Online is working on its Driveway broadcasting service, and Microsoft and Netscape are building push capabilities into upcoming versions of their browsers. In the fall, Netscape announced and demonstrated Constellation, an application that will be a component of the company's new Communicator Pro suite (see *Top of the News*, page 60). Scheduled to ship midyear, Constellation will incorporate the Castanet "tuner" and will let you select Web sites for automatic updating on the desktop.

In the other camp, Microsoft's Internet Explorer 4.0 will let you receive PointCast broadcasts, eliminating the need for proprietary software. And like Netscape, Microsoft is building full push capabilities into IE 4.0 through Active Desktop. With the browser, you'll be able to select from a variety of channels and monitor Web sites that use ActiveX protocols.

THE PROBLEMS WITH PUSH

SO DOES ALL THIS FRANTIC ACTIVITY signal a fundamental shift in how we'll use the Web? Not quite. Broadcasting information over the Internet is a compelling idea, but in practice, it doesn't deliver. For one thing, current push products demand a lot of resources—on a Pentium-75 PC, performance drags. And as Miastkowski points out, these products work well only if you connect to the Internet through a high-speed line or your company's dedicated T1 line. Even with dedicated connections, though, some companies have banned the use of PointCast outright because of its drain on network bandwidth. And at home, over a 28.8-kbps dial-up line? Well, flipping through TV channels is a quicker way to get news updates. In many cases, simple e-mail newsletters work better.

Compatibility is another issue. If, for example, you want multiple news channels, you'll have a tough time installing and using more than one product at a time. Moreover, most broadcast products require that information be packaged in a proprietary format that the other products can't use. Imagine being able to get CNN only if you have a Sony TV, and CBS only if you own a Zenith. Bad news for information providers and consumers alike.

On the productivity front, these products give new meaning to the phrase "information overload." You'll learn, as one colleague remarked to me, all sorts of things you didn't need to know. And just try to carry on a meeting with PointCast running on your office PC instead of a regular screen saver. Bad news for those with attention deficit disorder.

Finally, by their very nature, push products skirt the Web's most valuable albeit frustrating aspect: the ability to use links to explore and research topics in more depth than any of us ever dreamed.

As is always the case with new technology, push products will improve and standards will develop, but don't expect them to solve all the Web's problems overnight. Web broadcasting will have its place, but browsing and bookmarks are here to stay.

Cathryn Baskin is editor in chief of PC World.

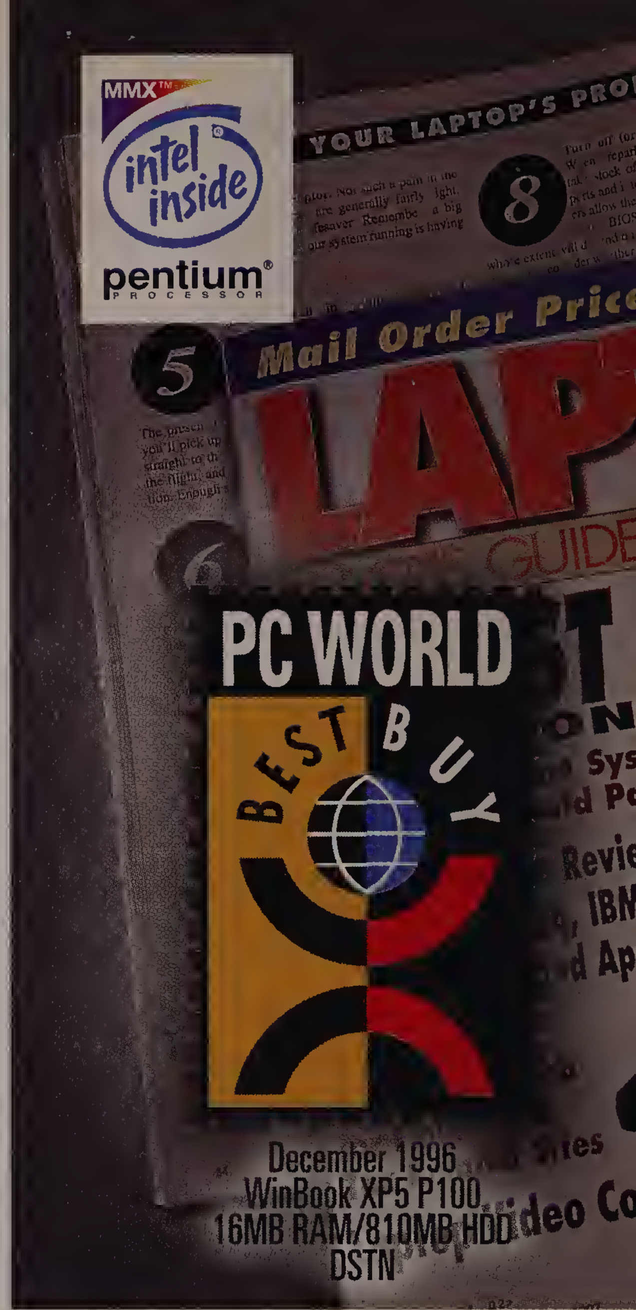
PHOTOGRAPH: ERIK BUTLER

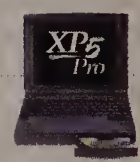
Winner's Circle

XP5 P133, TFT, 16MB, 33.6 fax/modem, 1GB for only

$1999

The WinBook FX shown with standard pointing stick, optional touchpad available





WinBook *XP5Pro*

- 150MHz Intel® Pentium® Processor
- 11.3" Active Matrix Color Display
- 1GB removable Hard Drive
- 16MB EDO RAM expandable to 40MB
- 28.8 PCMCIA Fax/Modem
- 256K Syncburst L2 Cache
- Options Bay accepts CD-ROM, 3.5" Floppy Drive (both included) or Optional 2nd Lithium Ion Battery
- 39 Watt Lithium Ion Battery
- Integrated dual-button pointing stick, optional dual-button touchpad
- Integrated Soundblaster 16-bit Stereo Audio
- Two Type II or one Type III PCMCIA Slot
- PCI Local-bus Controller with Graphics Accelerator
- Parallel, Serial, PS/2, and one 2-way Infrared port
- One-year extendable warranty
- Microsoft Windows® 95 installed on all models

$2999

CALL FOR OTHER MODELS AVAILABLE

Designed for Microsoft Windows 95

WinBook keeps winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning.

BYTE — April 1995, WinBook XP Best Value 486DX4 Notebook

Editor's Choice Award — January 1996 PC Laptop Editor's Choice – WinBook XP, XP5

W W W W W — March 1996 Windows 5 of 5 Rating WinBook XP5

PC World Best Buy — April 1996 WinBook XP5 P120 16/1.3GB Active Matrix

CDG&H Best Buy — Laptop Buyer's Guide May 1996, WinBook XP5 P120 16/1.3GB TFT

NSTL PC Digest 4-Star Rating ★★★★ August 1996 WinBook FX P133

©1997 WinBook Computer Corporation. All rights reserved. WinBook is a registered trademark of Micro Electronics, Inc. The Intel Inside logo and Pentium are registered trademarks and MMX is a trademark of the Intel Corporation. All other trademarks and registered trademarks are property of their respective corporations. All prices and specifications are subject to change without notice or obligation. Prices do not include shipping.

WinBook FX

- 133MHz Intel® Pentium® Processor
- 12.1" SVGA Active Matrix Color
- 28.8 Internal Fax/Modem
- 1GB removable Hard Drive
- 16MB EDO RAM expandable to 40MB
- 256K Syncburst L2 Cache
- Options Bay accepts CD-ROM, 3.5" Floppy Drive (both included) or Optional 2nd Lithium Ion Battery
- 59 Watt Lithium Ion Battery
- Integrated dual-button pointing stick (shown), optional dual-button touchpad
- Integrated Soundblaster Pro 16-bit Stereo Audio
- One Type II and one Type III PCMCIA Slot
- PCI Local-bus Controller with Graphics Accelerator
- Parallel, Serial, PS/2, Game port, and one 2-way Infrared port
- One-year extendable warranty
- Microsoft Windows® 95 installed on all models

$3199 UPGRADE TO 32MB, P150 PROCESSOR, 2GBHDD—ADD $800

WinBook FX

- 166MHz Intel® Pentium® Processor with MMX™ technology
- 12.1" SVGA Active Matrix Color
- 33.6 Internal Fax/Modem
- 3GB removable Hard Drive
- 48MB EDO RAM expandable to 80MB
- 256K Syncburst L2 Cache
- Options Bay accepts CD-ROM, 3.5" Floppy Drive (both included) or Optional 2nd Lithium Ion Battery
- 59 Watt Lithium Ion Battery
- Integrated dual-button pointing stick (shown), optional dual-button touchpad
- Integrated Soundblaster Pro 16-bit Stereo Audio
- One Type II and one Type III PCMCIA Slot
- PCI Local-bus Controller with Graphics Accelerator
- Parallel, Serial, PS/2, Game port, and one 2-way Infrared port
- One-year extendable warranty
- Microsoft Windows® 95 installed on all models

$4599 ULTRA-FAST, LOADED WITH FEATURES!

Limited Supplies of 100% quality-inspected refurbished WinBook XP5s

- 133MHz Intel® Pentium® Processor
- 10.4" Active Matrix Color Display
- 33.6 Fax/Modem
- 1GB Hard Drive/16MB RAM expandable to 40MB
- 256K Syncburst L2 Cache
- Lithium Ion Battery
- Integrated dual-button pointing stick, optional dual-button touchpad or optional dual-button trackball
- Two Type II or one Type III PCMCIA Slot
- One-year extendable warranty
- Microsoft Windows® 95 installed on all models

$1999

Call and ask about our $99 3-year limited warranty special with this model

WinBook® COMPUTER CORPORATION

1-800-468-0420

Mon-Fri 8am-9pm EST • Sat 9am-4pm EST

U.S. sales only. 30-day unconditional money-back guarantee from date of purchase.

Circle 254 on reader service card

and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...

December 1996 Windows Recommended WinBook XP5/P120

October 1996 BYTE Best Best Value Notebook WinBook FX

December 1996 WinBook XP5 P100 16/810MB DSTN

Laptop Buyer's Guide February 1997, WinBook FX P133 TFT

December 1996 Windows Recommended WinBook FX/P133

August 1996 PC Magazine Editors' Choice WinBook XP5 P100

EO75

EO SERIES

"The HEART of an Artist"

Vivid colors. Ergonomic design. Performance and features to indulge the visionary in you.

Princeton Graphic Systems® monitors have always had a solid reputation for pushing performance barriers far beyond industry standards. This tradition was proven with the highly respected Ultra 15 which won *PC World*'s Best Buy Award a remarkable three times in a row. The 135MHz/82KHz Ultra 17+ further redefined the industry with its award-winning, high refresh rate performance and ultra-low price. Now, our **E**xtra**O**rdinary new models surpass even our own stellar benchmarks.

Case in point, the EO75. With its super-high 95KHz horizontal frequency, 200MHz video bandwidth and an ultra-fine 0.26mm dot pitch, this 17" (15.8" viewable) monitor delivers a bold, flicker-free resolution of 1600x1200 @ 75Hz. That's rock-solid performance. Furthermore, our engineers added Enhanced Imaging Circuitry for a sharper focus without the moiré problems so common to other 0.26mm monitors. That's a difference you can see!

Princeton's next generation of EO monitors incorporates PreVu℠ controls and Coloright℠ technology perfect for intense, graphical applications. In addition, Princeton offers an **E**xtra**O**rdinary, full three year "Bucket to Bezel" limited warranty*.

The EO Series is already available at your nearby dealer. See it today. Their performance will win your heart. Their price will ease your soul.

"The SOUL of an Accountant"

$699 ESP

Princeton Graphic Systems • 2801 S. Yale St., Ste. 110 • Santa Ana, CA 92704 • Tel. 800/747-6249 or 714/751-8405 • Fax 714/751-5736 • Fax-On-Demand 714/751-0168 • Web Site: www.prgr.com

©1997 Princeton Graphic Systems. All rights reserved. All trademarks are the properties of their respective owners. As an Energy Star℠ Partner, Princeton Graphic Systems has determined that these products meet Energy Star℠ Guidelines for energy efficiency. Prices and specifications are subject to change without notice. Actual price may vary. *PreVu™ and Coloright™ are not available on the EO40. Full three-year limited warranty is offered on the following models: EO40, EO50, EO17, EO70, EO74, EO75 and EO76. Estimated street price shown.

PRINCETON®
GRAPHIC SYSTEMS

800-747-6249 ext. 182

Circle 151 on reader service card

MORE PC LESS MONEY

«CLR Infinity delivers. Top-flight performance at a good price.»
PC Magazine, January 1996

«... it delivers an enviable combination of quality, performance, and price, and we recomend it without reservation.»
BEST BUY AWARD
COMPUTER BUYER'S GUIDE AND HANDBOOK
June 1996

«CLR Infinity PT5-A200 is what some might call their "dream machine", powerful, fast, sleek, and all you need in a multimedia solution.»
COMPUTER BUYER'S GUIDE AND HANDBOOK
October 1996

CLR Infinity PT5-A133
133 MHz Pentium® Processor,
16 MB EDO RAM, 512 kB Pipeline
Burst Cache, 2.1 GB E-IDE Hard Drive,
8x E-IDE CD-ROM Drive.
15" CLR VisionPro Color Monitor, MPR-II Low Radiation,
1280x1024 N.I., 0.28 mm DP, 85 MHz, On-Screen Digital
Display with 15 adjustment settings, Anti-Static, Flat,
Non-Glare, Plug & Play ..... **$ 1595**
with 166 MHz Pentium® Processor with MMX™ technology ..... **$ 1845**
with 200 MHz Pentium® Processor with MMX™ technology ..... **$ 1995**

CLR Infinity PT5-A200C
200 MHz Pentium® Processor with MMX™ technology, 32 MB EDO RAM, 512KB
Pipeline Burst Cache, 3.2 GB E-IDE Hard Drive,
12x E-IDE CD-ROM Drive.
17" Color Monitor, MPR-II Low Radiation, 0.28 mm DP ..... **$ 2545**

CLR Infinity PT6-A200
200 MHz Pentium® Pro Processor, Based on 440FX PCIset, 256 kB Internal Cache,
32 MB EDO RAM, 3.2 GB E-IDE Hard Drive, 12x E-IDE
CD-ROM Drive; 17" Color Monitor, MPR-II Low Radiation,
0.28 mm DP; Windows NT Workstation Pre-Installed, with CD .... **$ 3045**
with 512 kB Internal L2 Cache ..... **$ 3545**

Options (all systems)

15" to 17" Monitor Upgrade	$ 350
28.8 US Robotics Data/Fax Modem	$ 99
Per 8 MB EDO RAM Upgrade	call
SCSI Options	call

We are Flexible in System Configurations!

CALL NOW TO ORDER

1-800-622-5592

Internet http://www.clrusa.com

Mon - Fri 9am to 9pm EST
Business Lease Available

(C) CompuLink Research, Inc. All prices and specifications are subject to change without notice. CompuLink Research, Inc. cannot be held responsible for omissions/errors in typography or photography. Technology without Compromise and the CLR logo are trademarks of CompuLink Research, Inc. Intel and Intel inside are registered trademarks and MMX is a trademark of Intel Corporation. All other trademarks or tradenames are the property of the respective companies. 30-day money back guarantee does not include original or return shipping and handling charges, and applies only to CompuLink (CLR) brand products, and begins from the date of shipment. All returns require a Return Authorization Number and must be shipped in the original packaging and condition, prepaid and insured.

Technology without compromise®

All Models with listed price include:

- Enhanced Architecture based on Intel® 430HX PCIset and ATX Design for maximum reliability and performance
- Top Class, Ultra Fast 64-bit 3D Video based on the ATi 264GT2 set, w/2 MB SGRAM upgradeable to 6 MB SGRAM, bundled with 3D Demo Software CD
- 16-bit Creative Labs Plug and Play Sound, with Wave Synthesis Table Upgrade Option
- Supports EDO, ECC, Parity, or Standard RAM from 8 up to 256 MB
- Advanced Power Management Architecture
- High Performance MPEG & CDi Full Screen, Full Motion Movie Playback
- Tool-free Ergonomic Mid-Tower Case Enclosure
- Over 200 MHz Clock Speed
- Plug & Play Flash BIOS; Super I/O Design
- Extremely high processor upgradeability architecture, supporting both Pentium® processors and Pentium® processors with MMX™ technology
- Windows 95 Pre-Installed, with CD. Lotus Smart Suite 96, with CD
- Bundled with Windows 95 PS/2 CLR Keyboard, and with PS/2 Ergonomic CLR Mouse
- Active Speakers included with every system

CompuLink Research, Inc.
3949 Commerce Parkway, Miramar, FL, 33025
Tel: 954-450-7061. Fax: 954-450-7062.

Circle 53 on reader service card

YOUR TAKE ON: Non-Intel processors ◆ Ethical standards ◆ Registry distress

CYRIX AND AMD PHOBIA?

IS SOMETHING WRONG with Cyrix- and AMD-based systems or non-Intel 686 chips in general that keeps your magazine from evaluating them? I was surprised to find many such PCs cost $500 less than comparable Intel-based systems. Why aren't these systems listed in the Top 100, given the good values they appear to be?

Paul Meyer, Internet

Editor's response: We would never exclude a system from the *PC World* Top 100 because it did not have an Intel processor. We evaluate processors indirectly by scoring a system's performance and price. (We also score design and features, reliability, and quality of support, as you probably know.) We test Cyrix- and AMD-based PCs whenever we get them. But very few large PC vendors use Cyrix or AMD chips, and the number is low even among small vendors. As new Intel, AMD, and Cyrix chips come out, we give CPU-specific performance comparisons in our *Top of the News* section. That's also where we report any problems. **–Tracey Capen**

MICRON SUPPORT PRAISED AND CONDEMNED

WHICH PART OF your January issue are we to believe? In *Consumer Watch,* Roberta Furger condemns Micron for lack of quality product support. But in *Top 20 Desktops,* Bryan Hastings lauds Micron for "a superb job of providing service to its customers." Whom are we to believe?

Gary Hopps, Internet

Editor's response: The point that Roberta Furger was trying to make was that she experienced poor service from Micron, which was uncharacteristic of the company. Overall, Micron's service has been considered excellent. Although most of the units that the company produces do not need to be serviced, some do–as with Furger's computer. The unusually poor response that Furger received from Micron compelled her to investigate. In the January column she reported her findings, including Micron's explanation of why service fell below expectations for a period of time. **–Michael Lasky**

OS/2 COVERAGE: LIFE BEYOND WINDOWS?

IT IS IRONIC that I was just going to write *PC World* about the lack of attention it pays to OS/2 when I read Phil Lemmons' editorial about ethical standards in search engines that steer users to paid advertisers ["Lies, Damned Lies, and Search Engines," December].

I feel *PC World* is as guilty, in that you give far too little support to OS/2. In December, Warp 4 made the *Bugs and Fixes* and *Top of The News* sections. Both reports were negative. OS/2 has no choice but to be as backward compatible and flexible as possible, and when it does not work 100 percent with a Windows program, that should not be viewed as a major flaw. No version of Windows can run any native OS/2 program. Does *PC World* consider this a major flaw? Give OS/2 a fair shake, and we will see more quality native OS/2 programs.

William Spicher, Internet

Editor's response: We base our OS/2 coverage on the level of reader interest. *PC World* published an OS/2 how-to column for a number of months and very, very few people read it. We have reviewed OS/2 and found it has real strengths, but those assets do not include usability or, most important, available applications. Moreover, our recent random-sample research shows that plans to adopt OS/2 are falling from already low levels, while adoption of Windows 95 and Windows NT is on the rise. It's a great shame. All of us would benefit if IBM competed more effectively, giving us a greater choice of operating systems and forcing the software industry into a reasonably competitive balance.

IBM did not fail in this because of press coverage of OS/2, which actually exceeded the level of reader interest in recent years. IBM missed the mark with OS/2 for many other reasons: Repeatedly changing its plans for operating systems. Failing to drum up OS/2 applications. Skipping usability testing on early versions of OS/2 or testing with people who proved sadly atypical. IBM's years of ineptitude with MS-DOS set Microsoft on the road to monopoly, and Microsoft's competence and licensing practices did the rest.

PC World's obligation remains to serve its readers by evaluating products fairly. We can't say good Microsoft products are bad just because we like competition, any more than we can ignore the real problems with OS/2. **–Phil Lemmons**

REGISTRY HEADACHE

STEPHEN MANES'S ARTICLE "Let 'em Eat Tech Support" [*Full Disclosure,* January] hits the nail right on the head. Publishers such as yourselves should raise a war cry with Microsoft to force them to implement Manes's suggestions. Though I like Windows 95 and its handling of resources and communications, I am ready to throw the whole system into the ocean when I run into a problem with the Registry. Manes's comments are even more apropos since Microsoft refuses to assist anyone with Registry problems. Microsoft has the "take two aspirin and call me in the morning" mentality.

Lorin Albeck, Internet

RIGHT IN THE MIDI

IN THE JANUARY issue, you reviewed the Internet Music Kit, a program that allows people to add MIDI files to their Web pages ["Sound Decisions for Internet Audio," *New Products*]. It seems to me that buying a $50 program is irrational when this simple HTML tag would work just as well: <EMBED SRC=midi filename ▶

ILLUSTRATION: JAMES YANG

AnthroCarts®!

AnthroCarts are *so* flexible. You have **dozens of shapes and sizes** to choose, plus over **50 accessories** to configure your cart exactly the way *you* want.

And they have a **Lifetime Warranty**! Made of steel and high density particle board, these AnthroCarts are as tough as nails.

See them all in our catalog, then call us direct to order. We'll ship to you the very next business day!

Call for your free catalog:

800-325-3841

6:00 AM to 6:00 PM PST, M–F

Anthro Corporation®
Technology Furniture®
10450 SW Manhasset Dr.
Tualatin, OR 97062
Fax: 800-325-0045
http://www.anthro.com

Since 1984. Prices from $299. For a lower cost line for the home, ask for our Compacta catalog. GSA contract. Available for OEM applications. Anthro, AnthroCart and Technology Furniture are registered trademarks of Anthro.

autostart=true>. And if your Web page's server isn't set for MIDI files, you could simply FTP your files to a server that is.

Kenneth Wong, Roselle, Illinois

Editor's response: You're right, you can use an HTML tag to add a MIDI file to a Web site. You can also use FTP as you describe, but this can cause time delays for the music clips. We like Internet Music Kit because it lets you add multiple MIDI files to a site with little time and hassle. **–Laurianne McLaughlin**

LOCATING HP SCANJET DRIVER

"SCANNERS FOR THE REST OF US" [January] was an excellent article. After reading the article I went out and bought an HP ScanJet 4P. Afterward, on Hewlett-Packard's Web site I couldn't find the driver to make it scan at 300 dots per inch. The article mentioned that people could download this driver. Where is it?

Frandon Cole, Cincinnati

Editor's response: The driver is on HP's Electronic Support Center site (http://hpcc997.external.hp.com:80/cposupport/indexes1/sj4cs.html). On that Web page, the HP ScanJet 4C driver is called 'DeskScan II ver.2.3.1a for Windows 3.X and Windows 95'. Click that link to download the 4C driver, a file called sj120en.exe. This driver will boost the color scanning resolution of the HP ScanJet 4P to 300 dpi. **–John Goddard**

PC World *welcomes your responses, ideas and other letters to the editor.* *See page 12 for contact information.* ■

CORRECTIONS AND CLARIFICATIONS

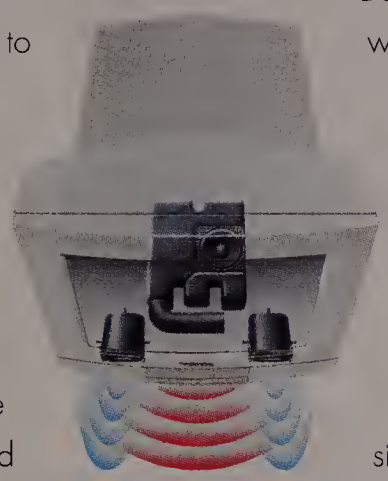
IN OUR FEBRUARY Top 100, "Top Power at Budget Prices," the price drop and screen type on the Gateway 2000 Solo 2100 P-120 notebook are incorrect. The price drop from January should have been $200, and the notebook's screen is a dual-scan display.

Contrary to the impression left by our December *Top 10 Modems*, no downloadable patch is available for fixing a bug in U.S. Robotics' Sportster Voice 28.8/33.6 Faxmodem. If your Sportster modem hangs when you use it in "terminal mode"—typing into a non-WYSIWYG screen like a BBS's—U.S. Robotics will exchange the modem without charge. Call U.S. Robotics' customer support at 847/982-5151.

SUDDENLY, EUROPEAN STANDARDS ARE A GORGEOUS NECESSITY.

As 17" becomes the standard for your multiple applications, and applications become more media-intensive, don't just settle for a bigger system. Acquire a better one. A media-ready Nokia 447X.

These are the first monitors in the world to achieve the new VESA standards for display clarity. Their spacious 15.7" viewing area boasts an aperture grill of .25 mm, and refresh rates as lofty as 150 Hz for virtually frozen screens. They are also capable of the ultimate 1600 x 1200 resolution. In other words, these screens are not just larger, they are clearer—which translates directly to improved working conditions and user-sensitivity. You'll also be relieved to know these are the first monitors to be TCO'95 certified for greatly reduced screen emissions. This reaffirms Nokia's leadership in the science it pioneered.



The media-ready series does more than extend Nokia's most award-winning model. It literally shouts innovation. Dual powered stereo speakers in front combine with a sub-woofer in the swivel/tilt base to shape audio at the intimate volumes most suitable for working close to a monitor. Combined with its standard in-bezel microphone, the media-ready series enables the complete convergence of computing and communications.

Which makes the new 447X series a necessity for anyone making full use of their computer. After all, the best way to meet the standards is to work with the people who set them. Visit us at **www.nokia-americas.com** or call **1.800.BY.NOKIA**, ask for **Dept. N512**.

447Xi—High-resolution display, ideal for graphics-intensive applications

447Xav—Professional-caliber display with integrated speakers, sub-woofer, and microphone

447Xavc—Adds to X series features with built-in color video camera

NOKIA

Circle 164 on reader service card

*Models are continuously upgraded. Size of CRT measured diagonally. Actual viewing size is slightly less. Manufactured and designed in Finland in an ISO 9001 approved environment. © 1996 Nokia Display Products, Inc. Multigraph, Valuegraph, MicroEmission and FullScreen are trademarks of Nokia Display Products, Inc. E-Mail: bynokia@aol.com. Prices and specifications are subject to change without notice. The Energy Star emblem does not represent EPA endorsement of any product or service. All other trademarks are the sole property of their respective companies.

Designed for

Microsoft
Windows 95

MultiSync is a registered trademark and ChromaClear, M500, M700, P750, FastFacts and See, Hear and Feel the Difference are trademarks of NEC Technologies, Inc. MultiSync monitors are PC and Macintosh® compatible and feature Plug and Play compatibility with Windows® 95. of their respective owners. *VIS stands for viewable image size. © 1996 NEC Technologies, Inc.

EXACTLY HOW SHARP IS THE PICTURE ON AN NEC MULTISYNC MONITOR WITH CROMACLEAR?

Windows and the Windows 95 logo are registered trademarks of Microsoft Corporation. All other trademarks or registered trademarks are property

"You've never seen sharpness like this!" Familiar words, no doubt. They're written in pretty much every monitor ad to date. So how can we demonstrate that this elusive distinction belongs to us? Technology.

Introducing CromaClear™ from NEC. A patented, new CRT technology so revolutionary it delivers unprecedented sharpness and image clarity.

Of course, this is all easy to say, but as the leader in monitor technology we can show you—right in front of your very eyes no less—that graphics will be more detailed, smaller type will be easier to read, even video will have unparalleled definition.

NEC CromaClear. CRT technology so incredibly advanced it actually is about splitting hairs.

NEC MULTISYNC® MONITORS WITH CROMACLEAR

MODEL	P750™	M700™	M500™
CRT/VIS*	17"/15.6"	17"/15.6"	15"/13.8"
MAX. RES.	1600X1200@75HZ	1280X1024@65HZ	1280X1024@65HZ
REC. RES.	1024X768@55-117HZ	1024X768@55-86HZ	800X600@55-110HZ
MASK PITCH	0.25MM	0.25MM	0.25MM
WARRANTY	3 YEAR LTD.	3 YEAR LTD.	3 YEAR LTD.

For more information, please call 1-800-NEC-INFO. If you'd prefer a fax, try FastFacts™ at 1-800-366-0476 and request catalog #1. Or, visit our Web site at http://www.nec.com.

SEE, HEAR AND FEEL THE DIFFERENCE.™

NEC

Circle 203 on reader service card

Introducing Mega

(909) 869-7976 Fax (909) 869-7958 • Call FaxSonic™ at (909) 869-7318 (24-hour fax-on-demand) • Internet: www.viewsonic.com
Prices and specifications subject to change without notice. **MSRP as of January 1, 1997
© ViewSonic Corporation 1996, 1997. All rights reserved. Corporate names and trademarks stated herein are the property of their respective companies.

Monitor™:

with 250 MHz video input bandwidth, 1800 x 1440 @ 76Hz and a 30–115 KHz horizontal scan range,

what else could you call it?

Announcing the ViewSonic P815 21" (20" viewable) monitor: Mega sharp. Mega stable. Mega fast. Mega value.

It's the latest innovation from ViewSonic®, the recognized leader in color monitor technology. And it's a mega hit.

More power to you.

Revolutionary Invar Shadow Mask technology delivers some pretty unbelievable numbers. Like resolutions up to 1800 x 1440 at a 76Hz refresh rate.

	ViewSonic Professional Series				
Model	P815	PT813	P810	PT775	17PS
CRT Size/Viewable	21"/20.0"	21"/20.0"	21"/20.0"	17"/16.0"	17"/16.0"
Dot/Aperture Grille Pitch	0.25mm	0.28mm*	0.25mm	0.25mm*	0.25mm
Horizontal Frequency	30-115 kHz	30-107 kHz	30-95 kHz	30-96 kHz	30-86 kHz
Video Input Bandwidth	250 MHz	230 MHz	200 MHz	200 MHz	135 MHz
Maximum Resolution	1800 x 1440	1600 x 1280	1600 x 1280	1600 x 1280	1600 x 1280
Optimal Resolution	1800 x 1440 @ 76Hz	1600 x 1200 @ 85Hz	1600 x 1200 @ 76Hz	1600 x 1200 @ 77Hz	1280 x 1024 @ 80Hz
TCO Certified	Yes	Yes	Yes	Yes	Yes
MSRP**	$2,195	$1,895	$1,745	$999	$799

*Aperture Grille

A whopping 250MHz video input bandwidth. And a horizontal scan rate up to 115KHz. All of which are high water marks in the industry.

Add to that a 0.25mm dot pitch (also the best in the business) and you've got the new standard for high-end CAD, document imaging and other applications where absolute precision is a prerequisite.

The benefits of this new, state-of-the-art P815 are many—and obvious to the eye. The text is the sharpest available today. Period. The images are absolutely flicker-free, virtually eliminating fatigue and eye strain.

The P815 displays more information faster than any monitor you've ever seen before. And with BNC and VGA connectors, you can easily switch between two separate systems.

Compared to other monitors there is no comparison.

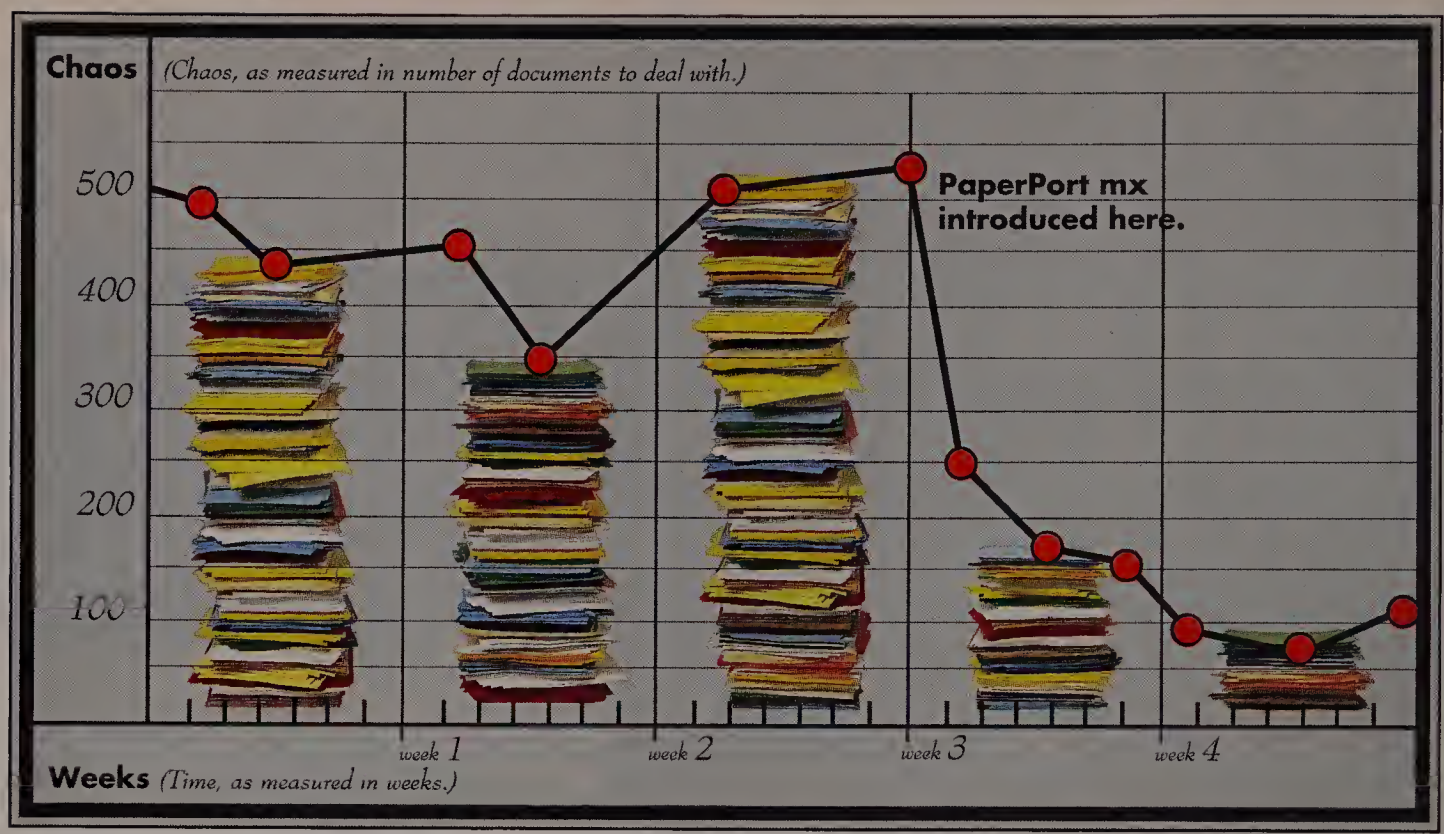
After winning the Byte Spring '96 "Best of Comdex" and "Best of PC Expo" awards, the performance is obviously rated the highest in the industry, but the price is not—it is a real mega value. It comes with ARAG® anti-reflection, anti-glare screen coating, a limited 3 year warranty on CRT, parts and labor (the best in the business), and an optional Express Exchange℠ Service program that insures 48 hour replacements.

If all this doesn't convince you that the ViewSonic P815 is truly a "mega monitor," then seeing it certainly will. Call (800) 888-8583 and ask for agent 7407 for your nearest dealer.

ViewSonic®

Circle 224 on reader service card

THE BUSINESS STRESS-REDUCTION INDEX



Sharp drop in chaos; Analysts suspect new PaperPort mx.

REDUCE ISSUES DOWN TO THEIR ESSENTIALS.

The first step in reducing stress is to rid yourself of unnecessary paper. PaperPort mx can scan thousands of words in minutes—from virtually any type of document. Reports. Memos. Letters. Newspaper articles. So you can more easily deal with them. The result is higher productivity. For instance, Toyota's U.S. marketing division deployed PaperPort in its organization and expects to save considerable time and money.

BE THE GREAT COMMUNICATOR.

Use PaperPort mx to scan wads of information directly into reports, proposals, and e-mails. It will even let you send information over the Net—for instance, that contract (or invoice) that needs immediate attention.

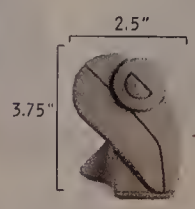
visioneer

IMPROVE YOUR TIME-MANAGEMENT SKILLS.

Rid your world of unnecessary and time-consuming tasks. For example, retyping. PaperPort mx can handle it for you. Simply take the document you want to retype, and scan it with PaperPort mx. Then PaperPort mx's integrated Xerox TextBridge™ OCR software converts these words to digital format so they can be edited or copied. Literally saving you hours.

MEASURABLE OPERATING RESULTS.

Ah, here's a bonus: PaperPort mx can accomplish all of these things—without hogging space on your desk. It's sleek and small and fits right between your keyboard and monitor.



MANAGE TECHNOLOGY.

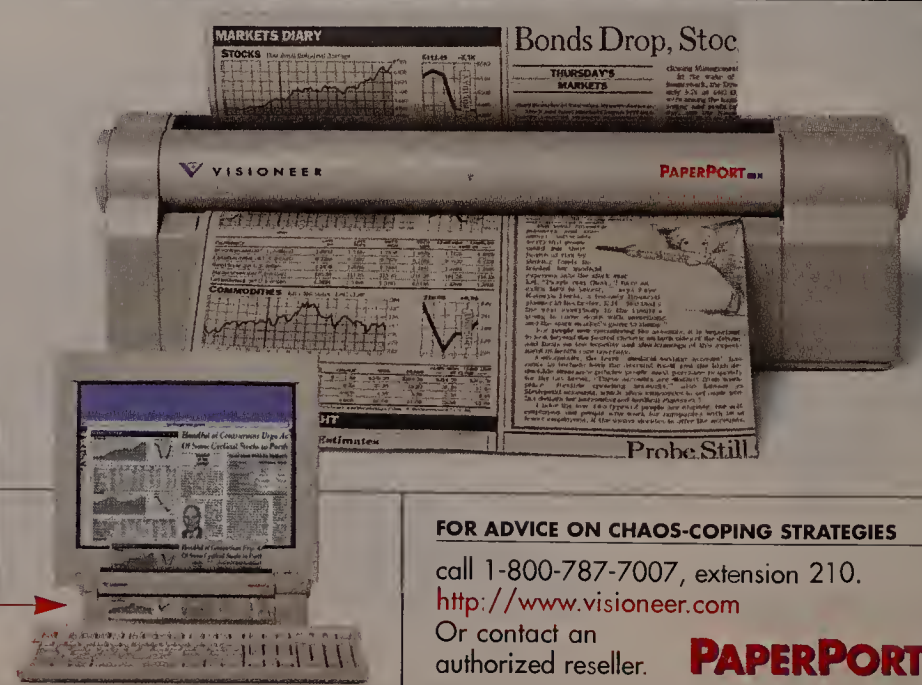
Here's a secret about how to get the technology you have to work harder. Say you want to send a fax. Scan in your document using PaperPort mx, then send a fax using your computer's modem. It saves time (you'll never again have to trek down the hall to fax something). And it's usually cheaper, to boot.

SIMPLIFY OPERATIONAL STRUCTURES AND SYSTEMS.

For instance, your archaic filing system. Instead, use PaperPort mx. Filing things digitally on your computer takes up far less space, but more than that, it helps you pinpoint a specific document later. Just type in a keyword, and PaperPort mx will retrieve it for you.

ORCHESTRATE THE PROGRAM FOR CHANGE.

Don't let its compact size fool you. PaperPort mx is tough enough for even the toughest business environment. For one, it's fully compatible with Windows NT. And at a new lower price, even the most stringent bean counters in your company will be pleased.



FOR ADVICE ON CHAOS-COPING STRATEGIES

call 1-800-787-7007, extension 210.
http://www.visioneer.com
Or contact an authorized reseller.

PAPERPORT mx

Copyright © 1997 Visioneer, Inc. All rights reserved. Visioneer and PaperPort mx are trademarks of Visioneer, Inc. The Visioneer logo, PaperPort, and Paper-driven are registered trademarks. All trademarks are the property of their respective owners. Made in China.
Patent # 5,499,108; 5,517,332; 366,650. VIS0069/PCW 2/97

Quick Information Fix—Web Style

It's easy to be an informed consumer. Check out these advice-packed Web sites for timely news and tips.

ILLUSTRATION: CALEF BROWN

I'M AN INFORMATION JUNKIE. I get five newspapers a day, and my radio dial is permanently stuck on the local all-news National Public Radio affiliate. Now that I work from home full-time, I sometimes even *miss* those morning and afternoon commutes. Yeah, the traffic was terrible—but it was one of the few times I could listen to an hour of news, uninterrupted.

I now satisfy my information addiction on the Internet, particularly when it comes to consumer-related news and advice. Here, literally hundreds of public and private consumer agencies congregate to provide a one-stop shop for everything from updates on the latest consumer protection initiatives to complaint forms and information on the cheapest credit cards on the planet.

It's never been easier to be an informed consumer. All it takes is a modem and an Internet hookup. Here's a list of my favorite sites, sure to turn even the laziest consumer into a Nader Raider. While I found most of these sites by searching the Web, you will no doubt find many more just by checking out some of the valuable, time-saving links at each of these sites you visit.

CONSUMER WORLD

IF YOU BOOKMARK ONLY ONE consumer site, make sure it's this one. It has been around for ages but still offers the most comprehensive set of links on the Internet. Among its useful resources is a Consumer News section that contains updates from the Better Business Bureau, daily reports from the National Fraud Information Center, and news on online scams, courtesy of ScamBusters, an electronic newsletter on Internet-based schemes. The Consumer Agencies section takes you to dozens of state and federal agencies, many of which allow you to file complaints about companies in their jurisdiction or send inquiries directly from their Web pages. There are even links to the customer service Web sites of leading companies, where you can ask questions, find the location of the nearest service center, or just request a replacement for that VCR manual you thought you'd filed away in a "safe" place. (http://www.consumerworld.org/)

NATIONAL CHARITIES INFORMATION BUREAU

THIS IS THE PLACE TO GO if you want to know how your favorite charity is spending your donations. The goal of this organization is to promote intelligent giving and to support the work of nonprofit organizations that meet its rigorous standards. To this end, the NCIB prepares reports on dozens of national organizations. The reports can all be ordered online: You can get up to three reports at no charge, as long as you're willing to wait about four weeks for delivery by snail mail.

The reports are also available for $5.95 each through the NCIB's fax-on-demand service. Every two weeks the group's site fea- ▶

PKZIP® for Windows

Version 2.50
Compatible with
♦Windows 95
♦Windows NT
♦Windows 3.1x

Why use PKZIP for Windows?

- Save on-line time charges and save disk space.
- Compress files an average of 50-70%. Many large files compress well over 90%.
- Open .ZIP archives downloaded from the Internet.
- Simple point-and-click interface.
- Combines the best and fastest patented compression technology found in PKZIP 2.04g.

Other PKWARE Products:
PKLITE® & PKLITE Professional® for Windows
Put your executables on a diet!

PKWARE Data Compression Library®
Put compression in your application.
Separate versions available for DOS, DOS32, Windows, Win32, OS/2, UNIX & Macintosh.

To order call 414-354-8699 or visit our web site http://www.pkware.com

1992-1996 PC World World Class Award
1996 Government Computer News Best New Product Award at FOSE Finalist
1995 Computer Currents Readers Choice Award
1993 Shareware Industry Award
1992 Premiera Computing Magazine Award
1992 Dvorak/Zoom Award

PKWARE, Inc.
9025 N. Deerwood Drive
Brown Deer WI, 53223 USA
FAX: 414-354-8559
Email: info@pkware.com

Copyright 1996 PKWARE, Inc. All Rights Reserved. All trademarks or registered trademarks are the property of their resepective owners. PCW-397

Circle 212 on reader service card

tures a new charity whose full report is available online. Also worth a look are the NCIB's tips for givers and a wise-giving guide to charitable organizations. (http://www.give.org/)

INTERNET CONSUMER PROTECTION AGENCY

THIS GROUP IS billing itself as the Better Business Bureau of the Internet, but it's too soon to know how effective it will be in this endeavor. The ICPA is a for-profit business; Web-based merchants register with the ICPA, which then runs a check to verify the legitimacy of the firm and its good business practices. If the company passes muster, it gets to carry the ICPA seal on its home page. In mid-November, only one enterprise, a home-based software reseller in Cornwall, Ontario, was included in the directory. The ICPA is clearly not yet a force, but it may be worth checking out the page periodically to see how things progress. (http://www.glen–net.ca/icpa/)

> It's never been **easier** to be an **informed consumer.** All it takes is a **modem,** an Internet hookup—and some of these **URLs.**

STATE ATTORNEY GENERAL OFFICES

THIS SIMPLE yet extremely useful page includes the addresses and phone numbers of every state attorney general office in the United States. While this isn't a site that you'll come back to week after week, the list may come in handy if you ever run into problems with an out-of-state merchant. (http://www.imran.com/Consumers/AG_List.html)

THE BETTER BUSINESS BUREAU ONLINE

THE SERVICE WE'VE BEEN talking about for close to a year is scheduled to go live in the first quarter of 1997. Online businesses that that have met BBB standards will display a new "BBB Care" logo. Consumers who click on the logo will be taken directly to the BBB's merchant report for a detailed description of the company and its policies. You'll also be able to check out businesses directly from the BBB's home page. This part of the service is already available for businesses located in Eastern Massachusetts, Maine, and Vermont, (http://www.bosbbb.org/searchform.html) courtesy of the regional BBB office. (http://www. bbbonline.org/)

CARD LEARN

IN THE MARKET for a new low-interest credit card? Want to check out the credibility of an unsolicited credit card application? Then this is the site for you. It's sponsored by the RAM Research Group, publisher of the CardTrak newsletter. The site includes detailed information on all things related to those little plastic conveniences that can cause consumers so many pounding headaches.

You can search for a credit card based on your bill-paying habits: high-interest, low-fee cards if you pay off your balance every month; low-interest, high-fee cards for everyone else. If the card issuers have company Web sites, links are included. (http://www.ramresearch.com/cardlern.html)

HOW TO RESOLVE YOUR CONSUMER COMPLAINT

THIS PAGE IS WRITTEN BY attorney Richard Alexander, whose law firm sponsors the separate Consumer Law Page (http://consumerlawpage.com/), and provides consumers with a detailed step-by-step guide to resolving disputes with merchants and manufacturers. Its common-sense approach starts with contacting the offending merchant and continues through selecting an attorney—a last, and hopefully unnecessary, resort. Bookmark this site; it could come in handy. (http://seamless.com/talf/txt/complain.html)

CONSUMER INFORMATION CENTER WEB

THE GOOD FOLKS at the Government Printing Office in Pueblo, Colorado, are no longer producing paper versions of all their great consumer guides. Fortunately, many of them now are available ▶

You can tell a lot about a person's hard drive just by looking at him.

Oh, the things your hard drive says about you. Your life's on it, yet you rarely give it a second thought. Unless you were to, say, lose everything on it. Then it gets really interesting.

Not to worry. With a Western Digital drive, your life's information is absolutely safe. We know your information — whether it's all work and no play or any combination of the two — is your information. You surround yourself with it. And you want it stored in a customized, secure, accessible place. A Western Digital hard drive.

Western Digital makes the world's most recommended hard drives. We offer a whole line of high-quality Enhanced IDE and SCSI drives. Drives for you. Drives for every life. After all, nothing embodies your ideas like your hard drive. So visit our website at www.wdc.com/life or call 1-888-4WD-DRIVE (493-3748), extension 111.

©1996 Western Digital Corporation.

PUT YOUR LIFE ON IT.

Western Digital

Circle 251 on reader service card

Carrying "excess inventory?"

Turn your excess inventory into a tax break and help send needy kids to college.

Request a free guide to learn how donating your slow moving inventory can mean a generous **TAX WRITE-OFF** for your company.

Call 708-690-0010
Fax 708-690-0565

630 area code starting 8/3/96
Email scholar@eduassist.org

EAL

Educational Assistance Ltd.
P.O. Box 3021
Glen Ellyn, IL 60138

Excess inventory today ... student opportunity tomorrow

COMING UP

IN APRIL

INDISPENSABLE INTERNET TOOLS

Overwhelmed by more bookmarks, newsgroups, and plug-ins than you can handle? Web utilities can help you surf the Internet swiftly and safely. We find the best bookmark and search tools, offline readers, mail clients, security utilities, and much more.

THE BEST PLACES TO TELECOMMUTE...

Telecommuting takes more than getting your boss to buy in. We rank 300 cities for telecommuting, evaluating everything from employment rates and local taxes to ISDN access and next-day mail delivery.

...AND THE BEST SOFTWARE TO SET UP YOUR TELECOMMUTE

We stayed home but kept on working to give you our take on eight remote access packages. Here are the top ways you can bring your electronic office home or take it on the road.

EASY STORAGE: IDE HARD DRIVES

Adding storage to your PC used to require patience and technical expertise—but no longer. We test simple-to-install IDE hard drives with capacities of 2GB and up.

ALSO NEXT MONTH

▶**The PC World Top 100:** Updated monthly, this is the most current buyers guide to PCs and peripherals. Check out the Top 20 Power Desktops, Budget Desktops, and Notebooks and the Top 10 Personal Printers, 15-Inch Monitors, Graphics Boards, and Internal Modems.

▶**Special Report on Small Office, Home Office:** We'll help you pick the right phone system and technology to run a successful business. Plus our favorite products and services for small offices, including a fast ISDN service and much more.

▶**Here's How:** Upgrade Guide to adding an external drive to your PC.

PC WORLD

online. One of the most popular, the Consumer's Resource Handbook, provides detailed instructions on resolving disputes and additional information on how to contact many state and federal agencies. The publication is updated annually. You can download all of it, or just the sections you're most interested in. This site also features listings of other informational publications that are offered for sale by the GPO. (http://www.pueblo.gsa.gov/specpubs.htm)

THE CENTER FOR MEDIA EDUCATION

THIS WASHINGTON, D.C.–BASED nonprofit is a leader in the national drive for fair, open media. It led the charge to get television networks to offer 3 hours of educational programming for kids each day, took the lid off electronic redlining—where poor and minority communities are bypassed by new information networks—and started a debate about online marketing to children.

At this site you'll find thorough, groundbreaking reports on media issues that affect all of us. CME's Web page includes copies of its newsletters, discussion of key issues surrounding the use of new media, and excerpts from the Center's reports. (http://tap.epn.org/cme/ intro.html)

NATIONAL INSTITUTE FOR CONSUMER EDUCATION

OPERATED BY the College of Education at Eastern Michigan University, NICE was established in 1973 as a clearinghouse for consumer, economic, and personal finance education. This site features terrific primers on leasing a car, obtaining financial aid for college, obtaining credit (targeted specifically at women), and avoiding fraud. Good, useful stuff. Check it out. (http://www.emich.edu/public/coe/nice/nice.html)

Do you have a favorite consumer information Web site? Send the URL or any other comments you have on consumer topics to consumerwatch@pcworld.com. Roberta Furger is a PC World *contributing editor and author of the forthcoming* CyberGirls *(Warner Books, 1997, 212/522-7200).* ■

EXTRAS

(Available to both existing and new Gateway customers.)

GATEWAY SELECT

Our Gateway Select program lets you know you're getting software that meets or exceeds our standards for quality, value and ease of use.

Software

- NEW! **Games & Entertainment Pack II** Includes Deadlock™; MechWarrior® 2: Mercenaries™; 9™; Pitfall™; SPQR: The Empire's Darkest Hour™; and PC ProPad. **$99**
- **Kid's BackPack™ III** Includes Schoolhouse Rock!™: Grammar Rock™; Sesame Street: Get Set to Learn®; Math Blaster® Episode 2: Secret of the Lost City; Imo & The King™; Putt-Putt® Goes To The Moon™; and Gateway cow-spotted backpack. **$59**
- **Finance Pack II** *(U.S. Shipment Only)* Includes Quicken® Deluxe 6, Quicken Financial Planner™ 2, Quicken Family Lawyer™ 7, Quicken Parents' Guide to Money™ and a Turbo Tax® 96 coupon. **$69**

Printers & Extras

(Each printer includes cable and ink cartridge.)

- Canon® BJC®-240 Bubble Jet Printer **$189**
- Canon BJC-70 Portable Bubble Jet Printer **$299**
- Hewlett®-Packard LaserJet 5L Xtra Laser Printer **$399**
- Hewlett-Packard LaserJet 6P Laser Printer **$769**
- MS® SideWinder™ 3D Pro Joystick **$59**
- APC™ Back-UPS® 650 Pro UPS **$329**
- Visioneer™ PaperPort Vx™ **$249**

Service & Support

Gateway Gold™ Premium for Desktop Systems

Extended Three-Year On-Site Agreement*

- Priority 800 Number For Access to Technical Experts
  With system purchase **$99**
  Within current on-site service agreement **$129**

For our complete line of software and peripherals call GATEWAY™ component add-on sales at 800-846-2080. Sales Hours: 7am-10pm Weekdays (CT).

**On-site service is available to most locations in the continental United States, Alaska, Hawaii, Puerto Rico and Canada after you and your Gateway technician determine an on-site visit is necessary. On-site service is provided by PC Technology Services, Inc. On-site is not available for any monitor, mouse, keyboard, or portable system. Write or call for a free copy of the on-site service agreement.*

UPGRADES

(Sold only with the purchase of a system.)

Desktop Upgrades

- **Altec™ Lansing ACS-251 Subwoofer $75**
- **Altec Lansing ACS-410 Dolby® Surround Sound Speaker System w/ ACS-251 Subwoofer $120**
  (upgrade from PCs that include Altec ACS-41 speakers)
- **CD-Recordable Drive $429**
  4X read/2X write recordable CD drive with SCSI controller, CD Creator 2 for MS Windows® and three media disks.
- **Iomega® Ditto™ 3200 Internal Tape Backup Unit $199**
  3200MB with compression, nominal 1600MB
- **Iomega Internal Zip™ 100MB Drive $139**
  (includes three 100MB cartridges)
- **Iomega External Zip 100MB Drive $199**
  (before $50 manufacturers rebate)
- **Iomega Jaz® 1GB Drive $429**
  (includes SCSI controller and 1GB cartridge)
- **MS Windows NT® 4.0 Upgrade $99**
  (upgrade from PCs that include MS Windows 95)

Portable PC Upgrades

- Gateway Solo™ Mini Docking Bar **$199**
- 28.8 PCMCIA Data/14.4 Fax Modem **$200**
- Gateway Solo 2100 upgrade from an 11.3" Dual Scan to an 12.1" Active Matrix SVGA color display **$530**

Destination™ Big Screen PC Upgrades

- harman/kardon® High-Fidelity Sound System
  Seven-piece Dolby Pro Logic® Surround Sound speaker system including AVR-10 audio/video receiver with remote, subwoofer, center channel, and four satellites for the ultimate multimedia audio experience. **$699**

The Dakota Keykeeper is Gateway 2000 Security Guard, Ed Redenius. Thanks for freezing your "key-ster" off for us during this photo shoot, Ed.

GATEWAY2000

"You've got a friend in the business."®

800-555-2099

www.gw2k.com

610 Gateway Drive • P.O. Box 2000 • N. Sioux City, SD 57049-2000 • Phone 605-232-2000 • TDD 800-846-1778 • Fax 605-232-2023 • FaxBack 800-846-4526 • International FaxBack Access 605-232-2561
Component Add-On Sales 800-846-2080 • Sales Hours: 7am-10pm Weekdays, 9am-5pm Saturdays & Sundays (CT)

© 1997 Gateway 2000, Inc. GATEWAY 2000, CrystalScan, black-and-white spot design, Field Mouse, "G" logo, TelePath, Vivitron and "You've got a friend in the business" slogan are registered trademarks, and Destination, EZ Pad, Family PC, GATEWAY, Gateway Gold, Kid's BackPack and Gateway Solo are trademarks of Gateway 2000, Inc. The Intel Inside Logo, Intel and Pentium are registered trademarks and MMX is a trademark of Intel Corporation. Winstone is a registered trademark of Ziff-Davis Publishing Company. ViRGE is a trademark of S3. All other brands and product names are trademarks or registered trademarks of their respective companies. All prices and configurations are subject to change without notice or obligation. Prices do not include shipping or applicable sales tax. Many Gateway 2000 products are custom engineered to Gateway 2000 specifications, which may vary from the retail versions of the software and/or hardware in functionality, performance or compatibility.
*Financing available on approved credit issued and administered by MBNA America® Bank, N.A. Payments based on 36-month term at 14.9% Annual Percentage Rate. †Leasing arranged by independent leasing companies to qualified commercial customers. Lease payments based on 36-month term. Lease terms subject to change without notice or obligation.

Performance. Art.

Introducing Studioworks, the new generation of computer displays from Studioworks GoldStar. On the performance side, Studioworks delivers a clearer, sharper image and more accurate color, edge to edge. Plug and play compatibility with Windows® 95 sets optimal image characteristics automatically*. A compact design fits more screen into less space. And new digital on-screen controls make precise, custom adjustment simpler. For the artist in you, Studioworks displays the fine details and the subtle tones and textures, to give your vision that added brilliance. The new Studioworks series from GoldStar. They're more than monitors, they're masterpieces. Ask for them at your local computer retailer.

S T U D I O W O R K S

MODEL	SCREEN	PITCH	MAX. FLICKER-FREE RESOLUTION
20i	20" (18.76" VIS)	.28mm dot	1280x1024 @ 76 Hz NI
78i/78m†	17" FST (15.7" VIS)	.26mm dot	1280x1024 @ 76 Hz NI
76i/76m†	17" FST (15.7" VIS)	.28mm dot	1024x768 @ 80 Hz NI
56i	15" FST (13.6" VIS)	.28mm dot	1024x768 @ 80 Hz NI
56m†	15" FST (13.6" VIS)	.28mm dot	1024x768 @ 80 Hz NI

† Built-in stereo amplifier and speakers. * Requires DDC compatible video card.
Microsoft and Windows 95 are registered trademarks of Microsoft Corporation.

Designed for Microsoft Windows 95

GoldStar

LG Electronics

LG Electronics U.S.A., Inc.
1000 Sylvan Avenue, Englewood Cliffs, NJ 07632 (201) 816-2000

PARTS • LABOR • CRT 3 YEAR LIMITED WARRANTY

Circle 96 on reader service card

Software on the cheap ◆ My printer won't let me upgrade ◆ Cheated by sound card

YOU CAN RECYCLE SOFTWARE?

I WAS IN THE MARKET for a new word processor but hesitated to pay the $229 list price for the latest version of WordPerfect. It occurred to me that I could save some money by buying used software, but I wasn't sure that was legal. When I saw an ad in *PC World* for a company called Recycled Software in Las Vegas, though, I gained confidence. I placed an order for WordPerfect 6.1, paid $179, and received the product in two days. I had some trouble with the installation and called the company for help. A technician patiently walked me through the process. A few days later, I had another problem—which turned out to be unrelated to WordPerfect—and received the same patient guidance. I'm very pleased with this company.

Edwin Gillmore, Blossburg, Pennsylvania

Editor's response: According to Sandy Conway, co-owner of Recycled Software Inc., it is legal to sell used software—though the process isn't simple. Conway told us most software license agreements allow you to transfer the license provided you surrender the complete product and remove all traces of it from your hard drive. When somebody sells used software to Recycled Software, they must sign a transfer agreement and surrender the complete package. "If we find that there is a disk or manual missing, we send the package right back," Conway says. You can reach Recycled Software at 800/851-2425.

LEFT BEHIND BY WINDOWS 95

I PAID $2900 for an Okidata Doc-It multifunction device in October 1993. I'm very fond of this combination printer, fax machine, copier, and scanner. When Windows 95 first came out, Okidata promised a Windows 95 version of the software that operates Doc-It. But last summer, I got a letter from Okidata saying that Doc-It simply doesn't work in the Windows 95 environment. At first I didn't worry about it, but now I want to buy a new PC and, naturally, it will come with Windows 95. That leaves me unable to use my beloved (and expensive) Doc-It. I'm furious.

Stephen Kligerman, Rockaway, New Jersey

Editor's response: We spoke to Gene Grunza, senior marketing manager at Okidata. He explained that the company ran into technical difficulties that it was unable to resolve in developing the Windows 95 version of the Doc-It software. Rather than leave Kligerman an unhappy victim of the fast pace of change, however, Grunza offered to exchange Kligerman's Doc-It for a new printer. Kligerman says he's impressed with Okidata's response to his situation. "They offered me a choice of two new machines, either of which can do everything Doc-It can, apart from scanning." Grunza assured us that Okidata will look at every Doc-It owner's situation on a case-by-case basis. You can contact Okidata's Doc-It technical support at 800/654-0018.

THE UPGRADE MYTH

I BOUGHT A Dell Dimension P133c in October 1995. When I placed my order, I confirmed with the representative that I would be able to upgrade the Sound Blaster AWE32 sound card that came with it. I was happy with the system until I recently decided to upgrade the card. On the board I expected to find standard SIMMs that I could simply replace, but there weren't any. I called Dell for help and a representative told me my system came with a low-end "value edition" of the AWE32. That board can't be upgraded. I feel ripped off.

Kiran Shenoy, Dix Hills, New York

Editor's response: Dan Taylor of Dell's executive services department apologized to Shenoy and authorized a full refund on his AWE32 card—even though its warranty had expired. "We cannot confirm what actually happened," explains Taylor. "We concluded that there was a misunderstanding between Mr. Shenoy and the sales representative when the order was placed." Dell currently ships only the full edition of the card with its Dimension and OptiPlex systems. At press time, Shenoy had declined Dell's offer of a refund, preferring to hold off his upgrade and buy a new card at a later date. Our advice? If you want particular components in your new computer, be as specific as possible when you place the order: Use part names and version numbers whenever possible—and get the configuration in writing before you pay.

Think you've gotten a raw deal—or a great one? PCW Advocate *wants to hear the details at advocate@pcworld.com. We'll investigate complaints and publish items of the broadest interest. Aoife McEvoy is a staff editor for* PC World.

THE FINE PRINT

IS BUNDLED SOFTWARE AS GOOD AS RETAIL?

DON'T ASSUME the software that comes with your new PC is identical to what you'd buy off the shelf. The fine print on this Gateway ad says the bundled software may be different from the retail version. How so?

1. For starters, there's no printed manual. You'll get the software with its on-screen help on CD-ROMs. If you want printed manuals, be prepared to pay extra.
2. The biggest difference is with technical support. Support on Microsoft Office is free from Microsoft if you buy the retail version. Gateway provides support if you buy the software preinstalled. And as it happens, Gateway provides free support for most bundled Microsoft titles. But some companies charge for software support, so it's important to ask about this before you buy.

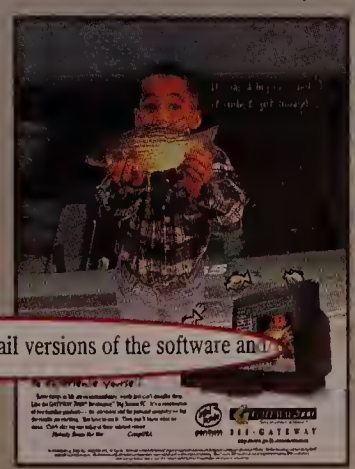
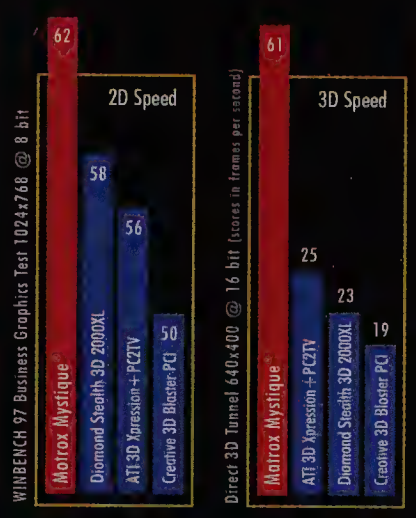


ILLUSTRATION: ROBERT NEUBECKER

Speed
Versatility
Upgradeability



New high performance drivers

MATROX MYSTIQUE

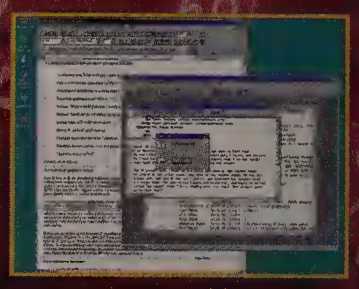
"The fastest, most complete low cost 3D card you can buy. Period."
PC Computing Dec '96.

Speed. Versatility. Upgradeability. The Matrox Mystique accelerator delivers more than ever and is now priced at just $149 (2 MB) and $189 (4 MB). With state of the art acceleration for Windows, the fastest 3D and high quality video playback, plus a complete new line of professional quality video upgrades, your desktop Pentium will be powered up for all your business needs.

Mystique's powerful SGRAM memory, integrated 64-bit chip design and unique scatter gather PCI bus mastering lets you race through high resolution spreadsheets, create dazzling 3D business presentations and animations, and enjoy smooth, full screen video effortlessly.

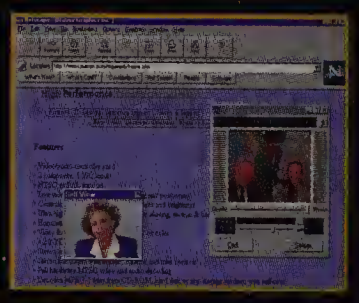
Not only does Mystique deliver blazing fast graphics, you can now push the limits even further with Matrox's new line of Rainbow Runner companion cards. Explore video conferencing over the network, edit your own business videos, or watch/record TV or video on the PC. At last you get a versatile, fully upgradeable solution for your business.

Over twenty years experience has earned Matrox a stellar reputation for quality products and reliable service. Matrox has been chosen by Compaq, Dell, Hewlett-Packard and IBM to power their flagship systems. PC Magazine, PC Computing and PC World have all bestowed upon us their highest honors. To power your PC into the 21st century, there is no other choice but Matrox Mystique.



High resolution workflow

3D web browsing



Video conferencing

Watch/ record TV or video on the PC

Now $149*

1996 Winner MVP PCComputing

matrox

1-800-362-9352 http://www.matrox.com/mga

OVER 185 AWARDS matrox

***Estimated street price for 2 MB. **Game bundle available with retail version only.** All performance tests conducted by Matrox Graphics Inc. on a Dell Dimension P200 V configured with Intel P5-200 MHz, 16 MB of SDRAM and 256K cache. Matrox Mystique, Diamond Stealth 3D 2000 XL and ATI 3D Xpression + PC2TV were configured with 2 MB of memory for the PCI bus using driver release 3.30, 4.03.00.2105 and 3.0 respectively for Windows 95. Creative 3D Blaster PCI was configured with 4 MB of memory for the PCI bus using driver release 1.01 for Windows 95. Winbench 97 business test conducted at 1024 x 768 resolution with 8-bit color at 75 HZ refresh using small fonts under Windows 95. Microsoft Tunnel test run at full screen 640 x 400 resolution with 16-bit color at default manufacturer refresh rate based on Gouraud shading, perspective correct textures, point sampled and z-buffer.

A new universe of video

MATROX
RAINBOW Runner

Set the lights, grab your camcorder and yell "action"! Creating your own home movies is just part of the exciting universe of video applications you can now explore with the new Matrox Rainbow Runner Studio.

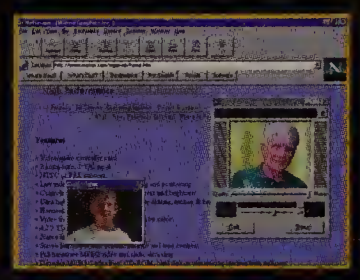
This companion card for the Matrox Mystique accelerator lets you create and edit high quality movies just like a pro with full resolution Motion JPEG (MJPEG) technology. It's fast, easy and fun. Just capture video from your camcorder, edit in Hollywood style special effects and then save your masterpiece to VHS tape or send it over the Net.

But that's not all. Enjoy video conferencing over the Net to keep in touch with friends and family. Play PC games on your big screen TV for a true arcade experience. Enjoy full screen hardware MPEG1 video for the ultimate in CD ROM fun. Watch or record TV/video on your PC[1], create family photo albums and more. With Rainbow Runner Studio, you've got the whole universe of video at your fingertips for only $249!

Matrox's twenty years of experience and over 185 awards means you're getting the most innovative and reliable solution. Matrox Rainbow Runner Studio is what you need to power your video into the 21st century.

	H/W MJPEG Video Editing	Video conferencing[2]	PC to TV output	Hardware MPEG	Price (esp)
Rainbow Runner Studio	✔	✔	✔	✔	$249
ATI All-in-Wonder		-	✔		$379[3]
Miro DC20	✔	-	-	-	$669
Fast AV Master	✔	-	-		$879

Create home movies


Video conferencing over the Net

Play PC games on your TV

Watch /record TV or video on the PC

Just $249*

Free software.$300 value**

PHOTO EXPRESS MediaStudio VDO

matrox

1-800-472-6485 http://www.matrox.com/mga

OVER 185 AWARDS

* Estimated street price ** Software bundle available only with retail product. Rainbow Runner products can only be used in conjunction with Matrox Mystique. 1.Watching TV on the PC requires Matrox Rainbow Runner TV (seperately) or a VCR in addition to Matrox Rainbow Runner Studio.2.Video conferencing software included. 3. Price quoted is for 4 MB version. All prices accurate at time of printing. VDOnet is a registered trademark of the VDOnet corporation.

Circle 143 on reader service card

Sony Picture Quality

Super Fine Pitch™ Trinitron® CRT

Multiscan® Technology

Accurate Focus Corner to Corner

Sony Engineering

Vertically Flat Screen

Higher Resolutions & Refresh Rates

Digital On-Screen Controls

Sony Advantages

Broad Family of Displays

National Service and Support

Windows® 95 Plug and Play

1-800-352-7669

© 1996 Sony Electronics Inc. All rights reserved. Reproduction in whole or part without written permission is prohibited. Sony, the Sony logo, Multiscan, Super Fine Pitch and Trinitron are trademarks of Sony. Windows is a trademark of Microsoft Corporation. Screen images are simulated.

Trinitron

Multiscan 300*sf*

SONY

Display your productivity

Displays by Sony. Accurate focus corner to corner.
A cleaner, crisper picture. Vivid, precise color.
Your display is where your work gets done.
Don't you deserve a Sony?

www.sony.com/technology

SONY

UNTIL YOU CAN MANAGE 101 TASKS AT ONCE, THERE'S FILEMAKER PRO.

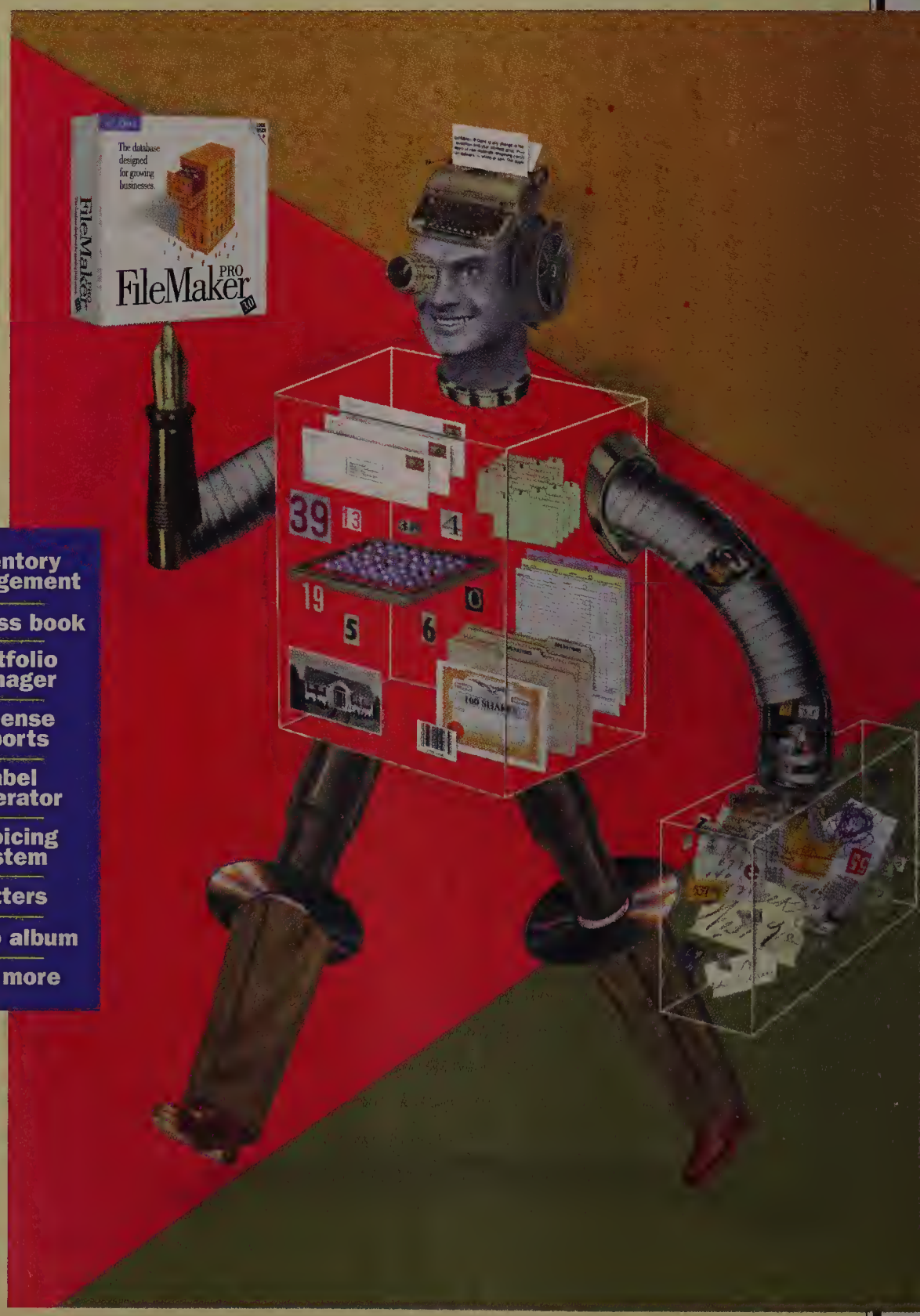
MULTI-PURPOSE. EASY TO USE. TOTALLY EFFICIENT. DOES WINDOWS.

Being able to organize and facilitate just about every task in your office is truly amazing for just one tool. But for FileMaker Pro® 3.0 software, that's nothing.

FileMaker Pro 3.0 is ready to use right out of the box. It's available for Windows or Mac® platforms, and has over 40 complete solutions like purchase orders and cash receipts just waiting for your data. But FileMaker Pro doesn't stop there: not only can you make up your own sports stats tracker, price lists or whatever, but you can also enhance them with built-in word processing and mail merge functions. And it's rated highest for ease-of-use and reliability in a recent Dataquest survey.

No one's saying you can't do as much as FileMaker Pro, but your looks would definitely pay the price.

To get your hands on a copy, visit your nearest reseller or call Claris at 1-800-424-9733 ext. 1415. **And visit www.claris.com/fmp for your FREE expense report tracker.**



- Inventory management
- Address book
- Portfolio manager
- Expense reports
- Label generator
- Invoicing system
- Letters
- Photo album
- And more

CLARIS®

Simply powerful software.™

In Canada please call 1-800-361-6075 ext. 257. © 1996 Claris Corporation. All Rights Reserved. Claris and FileMaker are registered trademarks of Claris Corporation. Mac is a registered trademark of Apple Computer, Inc. All other trademarks are property of their respective owners. Availability subject to change without notice. Offer expires 6/30/97.

Working Overtime at a Dead-end Job

How do you find a new job when your current one keeps you so busy you don't have time to search? Kristina Klein used the Internet to find the perfect employer.

PHOTOGRAPH: ROBERT HOLMGREN

THE PROBLEM IT'S AN ALL-TOO-TYPICAL situation. Your job is unfulfilling; you're not paid what you deserve; and your boss doesn't appreciate your contributions. At the same time, you're too busy to undertake the intensive job search that would land you the job you've been dreaming about. This month, Kristina Klein, a marketing communications manager for a Northern California technology start-up company, tells how she escaped a dead-end job, and found an ideal one—using the Internet. —*Editor*

TAKE A PERSON who thrives on working proactively, put them in a job where there's no time to be anything but reactive, and you've got a serious case of burnout. That's the situation I found myself in at my last job. As the trade show specialist for a small technology company, I was in charge of coordinating and supervising the company's participation in 35 trade shows each year. It was a huge amount of work: planning the trade show schedule; handling all the paperwork; coordinating with other vendors; and designing, setting up, and running the booths.

I enjoyed the excitement, but I didn't appreciate that my company gave me little support. It usually takes eight weeks to coordinate participation in a trade show. But in most cases I had less than four weeks. Because I had so little time, I worked long hours in panic mode. On top of that, my marketing, public relations, and database design skills weren't being employed to their fullest. To make matters worse, I was underpaid and my job title didn't reflect the work I was doing. Clearly, I had to get out.

THE SOLUTION: USE THE WEB TO FIND THE PERFECT JOB

JOB HUNTING IS time-consuming and hard to manage when you're working long hours and don't want your employer to know you're looking. But something had to give, so I started my search for a better job. Initially, I spent several hours a week hunting the traditional way: scanning newspaper classifieds and reading job listings in a professional organization's newsletter. Then I went online. At first I spent about four hours a week on the Internet, sorting through the jobs listed at various corporate Web sites. But soon I found a much more efficient way. I took out a subscription to the *San Jose Mercury News* Web site, Mercury Center (http://www.sjmercury.com), which includes the newspaper's classified ads. Using its search engine, I was able to quickly find job listings in my field.

It's a much faster and more complete way to sort through the ads. For instance, a lot of companies place one big ad in the Sunday classifieds. Even though a variety of jobs might be listed—marketing as well as engineering positions, say—that ad might be in the Engineering section, where I could easily miss it. But Mercury Center cross-references all job listings. As long as I used "marketing" or "trade show coordinator" as keywords, I'd see all the relevant listings, no matter how they were categorized. ▶

I cut my search time down to 10 minutes a day. It's cheaper, too; a subscription to Mercury Center is $4.95 a month, compared to $13.25 for newspaper delivery.

The best thing about job hunting on the Net, though, is that it's as easy for employers to find you as it is for you to find them. At Mercury Center I found a link to IntelliMatch (http://www.intellimatch.com/), one of several job-listing Web sites. I searched IntelliMatch's 2000-plus listings. Then I typed my skills, interests, and requirements into its structured database, which allows companies to search for employees using the skills they're looking for.

Ordinarily, I wouldn't have felt comfortable posting my resume online, for fear my employer would see it. But IntelliMatch let me specify which companies could *not* access my information. And it didn't cost me a dime; companies that use the IntelliMatch service pay a subscription fee ($6950 for three months).

Before long, I got a call from i-Planet, a Sunnyvale, California, start-up specializing in Internet business solutions. The company found me through the IntelliMatch database. Four days after an interview, I was offered my dream job. My new position offers much more creativity and recognition than my previous one. I have a title that better reflects my responsibilities. And best of all, I received a 25 percent pay increase, as well as all the exciting stock options that come with a start-up.

Ultimately, I got my perfect job simply by listing my qualifications in a way that made it easy for the right company to find me. I guess there are times when being reactive can force you to find creative solutions that work out better for everyone.

—Edited by James A. Martin

James A. Martin is a PC World *contributing editor. If you use PCs for management in your business, we want to hear from you. We pay $300 for published columns.* *See page 12 for contact information.* ■

Jobs on the Net

IN ADDITION TO IntelliMatch (http://www.intellimatch.com/), many Web sites can help you make a career move.

- The largest job database site is America's Job Bank (http://www.ajb.dni.com/), run by the U.S. Department of Labor. It includes listings for approximately 250,000 jobs.
- CareerMosaic (http://www.careermosaic.com/) has an international section that lists jobs in Asia, Australia, Canada, and Europe.
- CareerPath.com (http://www.careerpath.com/) lets you simultaneously search the classified job listings of 25 major U.S. newspapers by category and job title.
- Before you negotiate a salary for your new job, read up on current salary statistics at the JobSmart site (http://jobsmart.org/tools/salary/sal-prof.htm).
- If you're looking to relocate, find out what your salary is worth in another city at DataMasters' site (http://www.datamasters.com).

Photo by Neal Brown

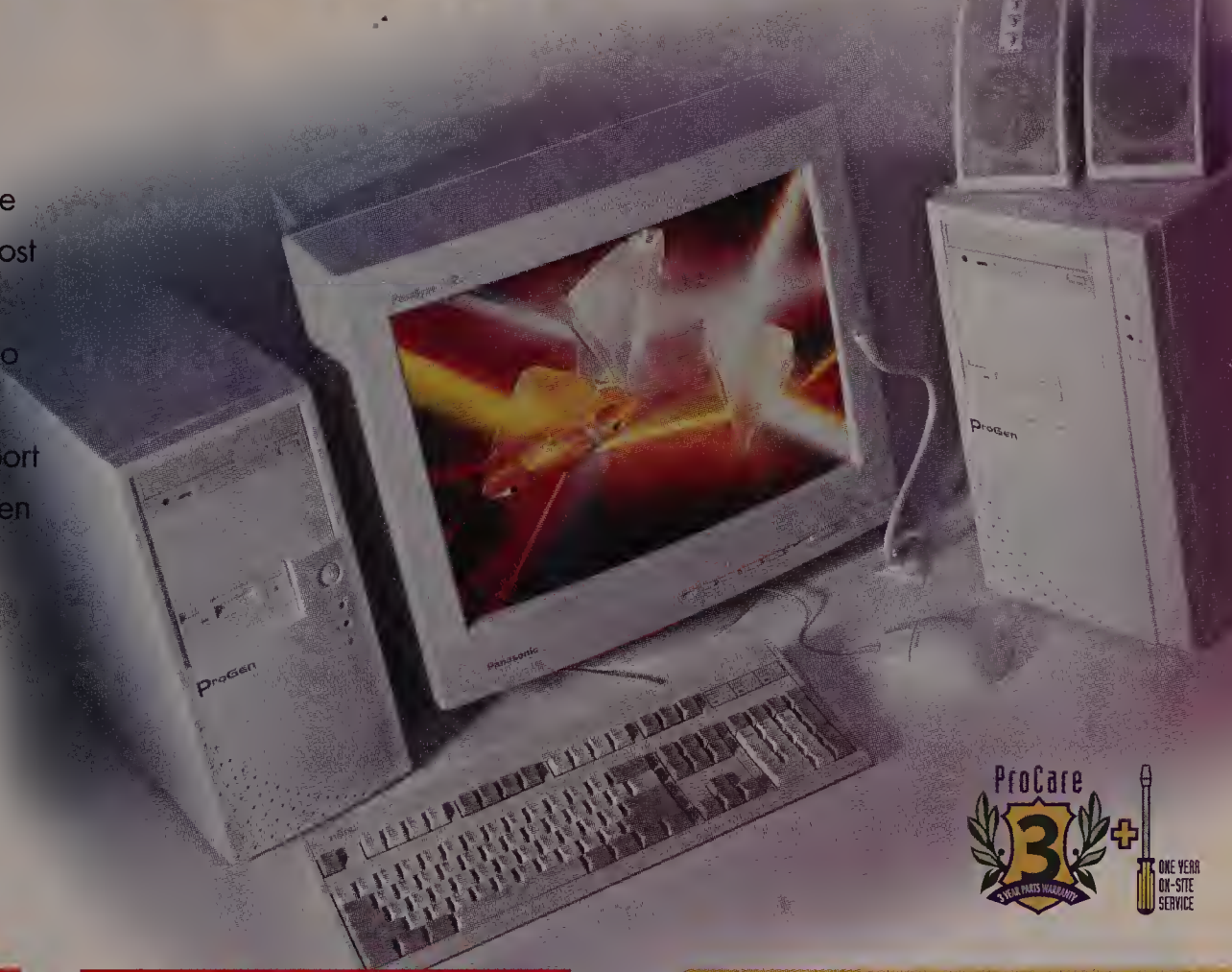
One of the most powerful weapons in the fight against crime.

Parks, community gardens, and open spaces not only make cities more beautiful, studies show they also help reduce crime. That's why, for more than 20 years, we've been conserving land for people. Now we need your help. Call 1 800 714 LAND.

THE TRUST FOR PUBLIC LAND

Bigger. Better. Faster.

At ProGen®, you get the latest technology at the best prices.Our award-winning systems feature true Intel® processors, as well as the most powerful multimedia components available, such as 3D MPEG video acceleration. And of course, you can expect solid service and support from ProGen. Our exclusive ProGen ProCare features a 3-year limited warranty with 1-year on site service*. To find out more, call a ProGen consultant today. Or, come and visit us on the web at: **http://www.progen.com.**



ProCare 3 YEAR PARTS WARRANTY + ONE YEAR ON-SITE SERVICE

Discover MPEG II 133MHZ

PC World Top 20 Nov '96 Dec '96 Jan '97

- **Intel PCIset Based Systemboard**
- 512K Pipelined Burst Cache
- Intel® Pentium® Processor
- 16 MB EDO RAM
- 2.1 GB Fast EIDE Hard Drive
- **ProGen GOLD V2 2 MB EDO (S3 Trio V2), MPEG, Cinepak**
- WavePlayer 32PnP 3D sound card
- 33.6kbps FAX/Modem w/Voicemail
- 8X EIDE CD-ROM Drive
- 1.44 MB 3.5" Flappy Disk Drive
- 15" (13.8" v.i.s.) .28dp PnP manitar
- Windows 95 Enhanced Keyboard
- Genuine Micrasaft Mause 2.0
- Micrasoft Windows 95 CD & Manual
- Amplified Sterea Speakers
- CD Software Bonus Pak & Micraphane w/stand
- **ProGen ProCare Warranty**

intel inside pentium PROCESSOR

3D Sound

$1349

120 MHz **$1319** 166MHz **$1509**

150MHz **$1419** 200MHz **$1749**

* Upgrade to Panasonic 15" .27dp add $35

Atlas X 166MHZ

Pentium® processor w/ MMX™ technology-based PCs

- **Genuine Intel TC430HX Systemboard**
- 256K Xcelerated Pipelined Burst Cache
- **Intel® Pentium® Processor w/ MMX™ technology**
- 16 MB EDO DRAM
- 2.5 GB Fast EIDE Hard Disk Drive
- **ProGen GOLD 3D (S3 Virge) 2 MB EDO DRAM MPEG, 3D (upgradable to 4MB)**
- Yamaha Sterea Wavetable Audia Subsystem
- **Subwoofer sound system w/ Amplified Stereo Speakers**
- 33.6kbps FAX/Modem w/Voicemail
- **12X EIDE CD-ROM Drive**
- 1.44 MB 3.5" Flappy Disk Drive
- Windows 95 CD & Manual
- Windows 95 Enhanced Keyboard
- Genuine Microsaft Mause 2.0
- **17" (15.8"v.i.s.) .26dp, 95KHz, PnP Monitor**
- Super CD Bonus Pak w/ Extra Games, Game Pad and Micraphane
- **ProGen ProCare Warranty**

MMX™ intel inside pentium® PROCESSOR

GOLD ProGen 3D ACCELERATED

$2069

200 MHz **$2269**

Business and consumer leases available.

ProFinder PRO-200

Fast Today, Faster Tomorrow!

- **Genuine Intel Performance/VS Systemboard**
- 256K Internal L2 Cache
- **Intel® 200MHz Pentium® Pro Processor**
- Faster PCI 2.1 compliant & EDO capable 82440FX PCIset
- **32 MB EDO RAM** (up to 128 MB)
- Creative Labs SaundBlaster 32 PnP
- 1.44 MB 3.5" Floppy Disk Drive
- 33.6kbps FAX/Madem w/Vaicemail
- **12X EIDE CD-ROM Drive**
- ***PC Magazine Editors' Choice!* Panasonic S17 .27dp 17" Digital PnP Monitor**
- **New MS-Windows® NT Workstation v4.0**
- 104-key Windows 95 Enhanced Keybaard
- Genuine Micrasaft Mause 2.0
- Amplified Sterea Speakers
- Gaaseneck micraphone w/ stand
- **ProGen ProCare Warranty**

intel inside PENTIUM®PRO PROCESSOR

$2599 EIDE

- **Large Capacity 3.1GB Fast EIDE Hard Drive**
- **ProGen GOLD 3D (S3 Virge) 2 MB EDO DRAM w/3 Games MPEG, 3D (upgradable to 4MB)**

NEW!

$2849 SCSI

- **Large Capacity 3.2GB Ultra SCSI3 Hard Drive**
- Adaptec 2940 PCI Ultrawide SCSI Adapter
- **ProGen GOLD 3D (S3 Virge) 4 MB EDO DRAM w/ 3 Games MPEG, 3D**

We accept VISA, M/C, Discaver, & American Express

Sales Hours

M-F, 6:30 A.M. - 7:00 P.M. PST

Sat., 9:00 A.M. - 3:00 P.M. PST

Customer Service/Tech Support Hours

M-F, 8:00 A.M. - 5:00 P.M. PST

Technical Support: 1-888-777-5501

1-888-776-9595

Customer Service: 1-800-848-8767

ProGen® SYSTEMS

A division of ProGen® Technology Inc

ProGen® Technology, Inc. 15501 Redhill Avenue, Tustin, CA 92780 Ph: 714/566-9200 Fax: 714/566-9267 BBS: 714/566-9255 E-Mail: webmaster@progen.com Web: http://www.progen.com

* On site service is based on the discretian of PraGen technical support. Leasing Rate will vary depending on state legislatian, and is intended far business or carporate use only. 30-day money-back Guarantee(shipping cost not included)

Circle 184 on reader service card

©1997 ProGen® Technology, Inc. Intel Inside logo and Pentium are registered trademarks, and Pentium Pro and MMX are trademarks of Intel Corporation. All other trademarks are the property of their respective owners. Prices are subject to change without notice.

The THRILLS!
The EXCITEMENT!
The SPEED!

See Adaptec® SCSI boost Windows NT™ performance and marvel at SCSI's true multitasking power. Watch as this action-packed duo energizes hard-drive performance. But the thrills won't stop there! Feel the excitement as Adaptec SCSI outperforms EIDE two-to-one. For more information and your copy of "PC for the Future" from Windows Sources, simply visit www.adaptec.com/nt or call 1-800-804-8886 ext. 5558. And see SCSI make NT blast off.

SCSI. THE COSMIC CONNECTION FOR DESKTOPS.

adaptec

We move the information that moves your world™

If you think this is an ad for a real movie, you may be spending too much time at work. ©1996 Adaptec, Inc. All rights reserved. Adaptec, the Adaptec logo and tagline are trademarks of Adaptec, Inc. which may be registered in some jurisdictions. Windows NT is a trademark of Microsoft Corporation. Used under license. All other trademarks belong to their respective owners.

NT 4.0 patches ◆ Hurricane gets more wind ◆ OS/2 bug fix ◆ LapLink and WebEx updates

More Patches for Windows NT 4.0

MICROSOFT CONTINUES TO find and fix problems with Windows NT 4.0. In fact, the company has released nearly a dozen more patches since we last wrote about NT (*Bugs and Fixes*, February). These fix an assortment of problems, including CD-ROM read errors, Microchannel bus snarls, incompatibilities with PC Card devices and dongles (hardware copy-protection devices required for programs like AutoCAD), and flaws that can restart or crash multiprocessor systems running the OEM version of NT.

Each fix is located in its own directory on Microsoft's FTP server (ftp://ftp.microsoft.com/bussys/winnt/winnt-public/fixes/usa/nt40/hotfixes-postSP1), which you can access with any browser. To locate, download, and install a fix, go to the FTP site and select a directory with a promising name; for instance, go to cdfs-fix/ for the patch for the CD-ROM problem. For a description of the problem and the fix, look for and open the .txt file beginning with the letter q, such as q142687.txt. For installation instructions, open the readme.txt file.

By the time you read this, Microsoft may have been rolled all of these fixes into a collection of patches called Service Pack 2. If the service pack is available, you'll be able to pick it up at ftp://ftp.microsoft.com/bussys/winnt/winnt-public/fixes/usa/nt40/ussp1/i386. You'll also find Service Pack 1 there, if you haven't downloaded it yet.

HELP FOR HELIX HURRICANE 2.0

IF YOU USE Helix Software's Hurricane 2.0 Windows memory manager, and you've experienced problems printing or playing .avi movies (or if you're getting error messages with any programs that was problem-free before you installed Hurricane or that works fine when Hurricane is disabled), Helix may have a patch for you. Since the program debuted last year, the company has posted three updates—versions 2.01, 2.02, and 2.03—on its Web site (http://www.helixsoftware.com/techsupp.html) in succession. Windows 3.1 and 95 versions of all three upgrades are available. You can also download the files from Helix's FTP server (ftp://ftp.helixsoftware.com/pub/support.html#Hurricane). Keep in mind, though, that the patches are cumulative. If you currently have version 2.01, you'll need to download and apply the 2.02 patch before applying the 2.03 patch. To find out which version you've got, look in the Hurricane Control Panel (the program's main configuration window).

The patch process itself is automated: Just download the self-extracting, self-applying patch file and accept its default settings. Once it's installed, however, you may still need help from Helix tech support (718/392-3735) to make it work, especially if you're uncomfortable with delicate chores like adding commands to .ini files. If you're an intrepid Hurricane survivor willing to go it alone, check the readme.txt file in your computer's \hurrican directory for instructions.

BUGGED?

IF YOU FIND a hardware or software bug, post your report on PC World Online, or send us e-mail at bugs@pcworld.com.

IN BRIEF

LapLink for Windows and WebEx Upgrades

TRAVELING SOFTWARE HAS added some tweaks to LapLink for Windows 7.5. The new version 7.5b patch supports Matrox Millennium video boards, fixes a modem call-back glitch under Windows 95 OEM Service Release 2, and prevents a file transfer error that may cause data loss with high-speed connections. You can find the patch file at http://www.travsoft.com/download/techdownload.htm. While you're there, you may want to update your version of WebEx, the company's offline Web browser, to 1.02. The upgrade improves access to subscription services, such as the online versions of the *Wall Street Journal*. You can go directly to this 1.2MB upgrade at http://www.travsoft.com/products/webex/upgr102.htm.

BUG OF THE MONTH

Warp CHKDSK Error Fixed

BUG OS/2 Warp 4's CHKDSK utility always reports a 'MINOR SYSTEM ERROR' when it scans a hard drive that's been partitioned with OS/2's High Performance File System. CHKDSK then attempts to fix the problem but fails, so you get the same error message each time you run the program. The problem lies with the 'start' entry in the partition's root directory, which is hidden for better compatibility with older FAT-file-system programs (it wasn't hidden before version 4.0). Unfortunately, IBM neglected to change CHKDSK to look for a hidden 'start'; hence the error.

FIX IBM has posted an updated uhpfs.dll that fixes the problem. You'll find the patch at ftp://service.boulder.ibm.com/ps/products/os2/fixes/v4warp/english-us/jr09427/jr09427.zip. To install it, unzip the compressed file to a temporary directory, boot from your OS/2 installation floppies, press <F3> for a command prompt, and then move uhpfs.dll from the temporary directory into the boot drive's OS2\DLL directory.

ICON: JEFFREY PELO

THE HUMAN EYE

Also known as:

"THE PIERCING GAZE OF SCRUTINY"

NARROWED AS IT SEARCHES FOR THE DEFECTS AND DESIGN FLAWS SO COMMONLY FOUND IN THE TECHNOLOGICAL ERA, THE EYE HAS ALSO BEEN KNOWN TO POP WIDE OPEN WHEN IT SEES A BETTER WAY.

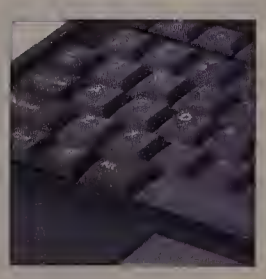
FUJITSU

FUJITSU PC CORPORATION

Built *for* Humans.

The LifeBook™ 500 and 600 Series. Notebooks perfectly designed for a manic, mobile world. A process that involved a close look at the way a notebook should feel, the way it travels, adapts, and, of course, performs.

The LifeBook 500 Series comes standard with CD-ROM, 16-bit sound, color SVGA video and a multi-function bay for endless expandability.



Designed for Microsoft® Windows® 95

LifeBook is a trademark of Fujitsu PC Corporation, and Fujitsu and the Fujitsu logo are trademarks of Fujitsu Ltd. The Intel Inside Logo and Pentium are registered trademarks of Intel Corporation. Microsoft, Windows, and the Windows logo are registered trademarks of Microsoft Corporation. All other trademarks or registered trademarks are property of their respective companies. ©1996 Fujitsu PC Corporation. All rights reserved.

*Preliminary measurement

OUR NOTEBOOKS AS SEEN FROM A HOLY COW PERSPECTIVE.

intel inside pentium® PROCESSOR

The LifeBook 600 Series.

① Is this a 12.1 inch active-matrix color SVGA 800x600 resolution screen? Or am I blind with joy? Yes.

② Look! It's a 1.2", 4.2* lb. travel light notebook. Wait! Attach the enhancement unit and it's a multimedia powerhouse. Somebody stop us.

③ With the option of 2 long-lasting Lithium ion batteries and the comprehensive power panel for on-the-fly tweaking, your vision of battery heaven is now in place.

We saw a big need for flexibility. So our notebooks are expandable by design—second batteries, second hard drives, available 28.8 fax/modems, CD-ROM capabilities, docking options and a full range of the latest Intel Pentium® processors.

But we also paid attention to the outside of our notebooks. An ergonomic form. A smooth feel. A really cool color. Sure, looks aren't everything. But when you combine it with performance, the result is something to behold.

FUJITSU PC CORPORATION. For more info, call 1-888-4-ON-THE-GO, ext. 9512, visit www.fujitsu-pc.com or get a QuikFacts fax at 1-800-936-5209.

Circle 94 on reader service card

The

HUMAN HAND

ALSO KNOWN AS:

The "CRUSHER"

Able to inflict massive amounts of damage when confronted with a poorly designed notebook. In extreme cases, it is quite capable of putting a hole in the wall.

FUJITSU

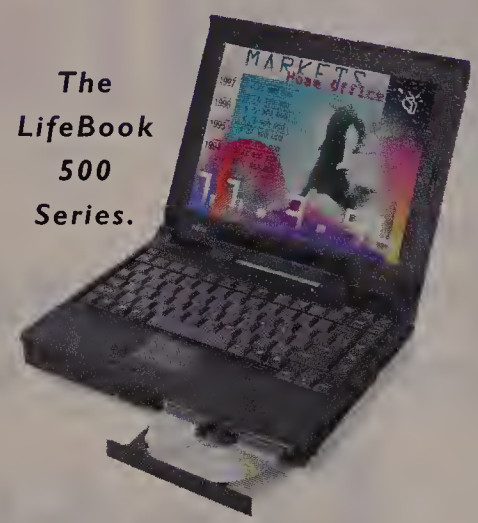
FUJITSU PC CORPORATION

Built *for* Humans.

Every LifeBook product must pass the 18,000 open and close test. Or it's not a LifeBook.

intel inside pentium PROCESSOR

A NOTEBOOK WITH SOME PRETTY COOL TOUCHES.



The LifeBook 500 Series.

Introducing the Lifebook™ 500 Series. A hands-on kind of machine to make your daily experience with a notebook personal and productive, not difficult and really annoying.

A status indicator for access to important operating information. Available internal 28.8 fax/modem with pre-installed "The Internet Starts Here" software suite. Superb color SVGA video that's easy on the eyes. A new ergonomic design because the way a notebook looks and feels is important too.

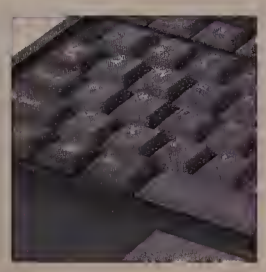
① **With the MULTI-FUNCTION BAY, you always have a choice. Second battery? Second hard drive? Or maybe a snack for later?**

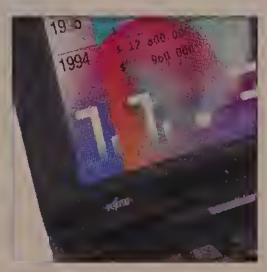
② **A PALM REST for comfort. A newly designed keyboard for convenience—like giving those darn arrow keys some space.**

③ **A really smooth shade of midnight blue to CALM you when you realize you're overworked and underpaid.**

And yes, it's multimedia equipped, powerful and expandable. So you get all the big things you need in a notebook. With all the little details you want.

6x CD-ROM, 16-bit sound and full-motion video support are standard. 120MHz, 133MHz or 150MHz Intel Pentium® processors are powerful options.





FUJITSU PC CORPORATION. For more info, call 1-888-4-ON-THE-GO, ext. 6513, visit www.fujitsu-pc.com or get a QuikFacts fax at 1-800-936-5209.

Circle 103 on reader service card

Designed for Microsoft® Windows®95

LifeBook is a trademark of Fujitsu PC Corporation, and Fujitsu and the Fujitsu logo are trademarks of Fujitsu Ltd. The Intel Inside Logo and Pentium are registered trademarks of Intel Corporation. Microsoft, Windows, and the Windows logo are registered trademarks of Microsoft Corporation. All other trademarks or registered trademarks are property of their respective companies. ©1996 Fujitsu PC Corporation. All rights reserved.

TOP OF THE NEWS

Browser Battle Lines

Communicator and Internet Explorer 4 attack the Web from different directions.

BETA

FOR A BRIEF moment in time during the great 1995 and 1996 Internet gold rush, the industry and users alike felt like true pioneers, exploring uncharted territories, expanding their universe. Programs with poetic names reminiscent of legendary Spanish and Portuguese globe-trotters promised the thrill of new worlds. But *Internet* has since become a household term, and Navigator and Internet Explorer are everyday tools not unlike word processors. As Netscape and Microsoft have discovered, Web browsing is just one aspect of what people need to be productive.

Accordingly, the two software publishers have revamped their Web browsers in an effort to address different productivity needs. Netscape Communicator, which includes Navigator and other applications, is a fairly complete communications suite with plenty of tools for staying in touch, interacting with peers, and keeping informed. Internet Explorer 4, on the other hand, presents a new desktop and file management model, making files on your system and those on a remote Internet site appear and behave the same. It's a classic Microsoft approach: Integrate applications and Windows 95 homogeneously to create one-stop computing.

Despite their different approaches to providing what users need and want, the companies offer similar bottom lines—packages that create the conditions for doing much of your computing within the browser environment. I took a look at an early beta release of Communicator and had a brief hands-on encounter with the pre-beta version of Internet Explorer 4—both of which

are expected to ship during the second quarter of this year.

COMMUNICATOR

NETSCAPE DESCRIBES Communicator, which will sell for $49.95, as an open e-mail, groupware, and browser suite. Simply put, this package will run on every major platform and relies on open standards such as POP3, SMTP, and IMAP4 for e-mail and H.323 for Internet phone. This openness means cross-platform operability for users of UNIX, Macintosh, and Windows 95, 3.1, and NT, and an independence from proprietary products such as Lotus Notes or cc:Mail. It even supports ActiveX, originally developed by Microsoft. This well-integrated suite is made up of a variety of components:

■ **Collabra** The groupware collaboration tool is a souped-up news reader. It accommodates discussion forums—public or private areas on an intranet or on the Internet—that let users interact with colleagues via message boards.

■ **Composer** This fairly rudimentary HTML authoring applet includes all the standard Rich Text fare (fonts, alignment, color, and so forth), a non-WYSIWYG but easy-to-use table tool, a spelling checker, and a publishing feature that enables you to upload your file to a Web server.

■ **Conference** The successor to Navigator 3's CoolTalk, Conference includes point-to-point chat, Internet phone, and a whiteboard. Like the rest of Communicator, Conference supports the Lightweight Directory Access Protocol standard, so you can click on a name in an Internet directory such as Four11 and initiate a session just as easily as from within the corporate address book.

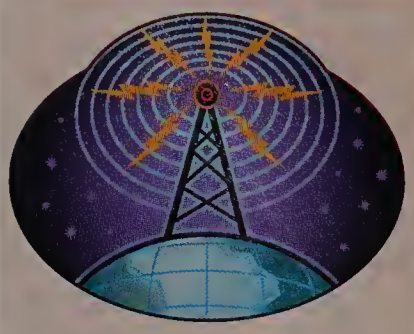
■ **Messenger** This e-mail client also relies on LDAP for its address book, and it supports encryption. You compose a message with Composer, so HTML-based e-mail can have a Rich Text Format with images incorporated into the message. Any HTML-aware e-mail client can view these messages exactly as they're intended to be seen. Messenger features custom filters for e-mail and hierarchical folders for organizing incoming and outgoing messages; it supports UUencoding for binary attachments.

■ **Navigator** Even if you love your existing Navigator to pieces, you must admit that its minimalist design and lack of customizability are major shortcomings. The new Navigator looks elegant and contemporary, and it's easily customized. Drag a URL from the address box to the custom toolbar, and you're just one click away ▶

EDITED BY
Charles Piller and Randy Ross

ILLUSTRATION: GORDON STUDER

JUST IN



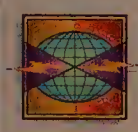
Vendor Shakeout

SEVERAL SMALL and midsize PC vendors have departed the market. **Canon Computer Systems** is halting desktop and notebook PC operations. Canon says it will continue to support its systems. **Blackship Computer**, a small Silicon Valley manufacturer, stopped answering its phones late last year. *PC World* has not been able to reach company officials. **Austin Computer/IPC Technologies**, a PC maker in Austin, Texas, has been purchased and will be under new management, according to sources. Analysts foresee trouble for midsize vendors as large players gather up market share.

More Problems at America Online

IN ONE OF SEVERAL recent legal actions against AOL, frustrated customers filed a class action suit alleging that the online service promised unlimited use under its flat-rate program but couldn't meet the surge in demand. Citing recurring network failures, **plaintiffs are seeking millions of dollars in punitive damages.** AOL says it expects to prevail in the lawsuit and announced steps to improve service and better meet demand. This is the latest round of problems for the nation's largest online service following its introduction of ▶

INTERNET



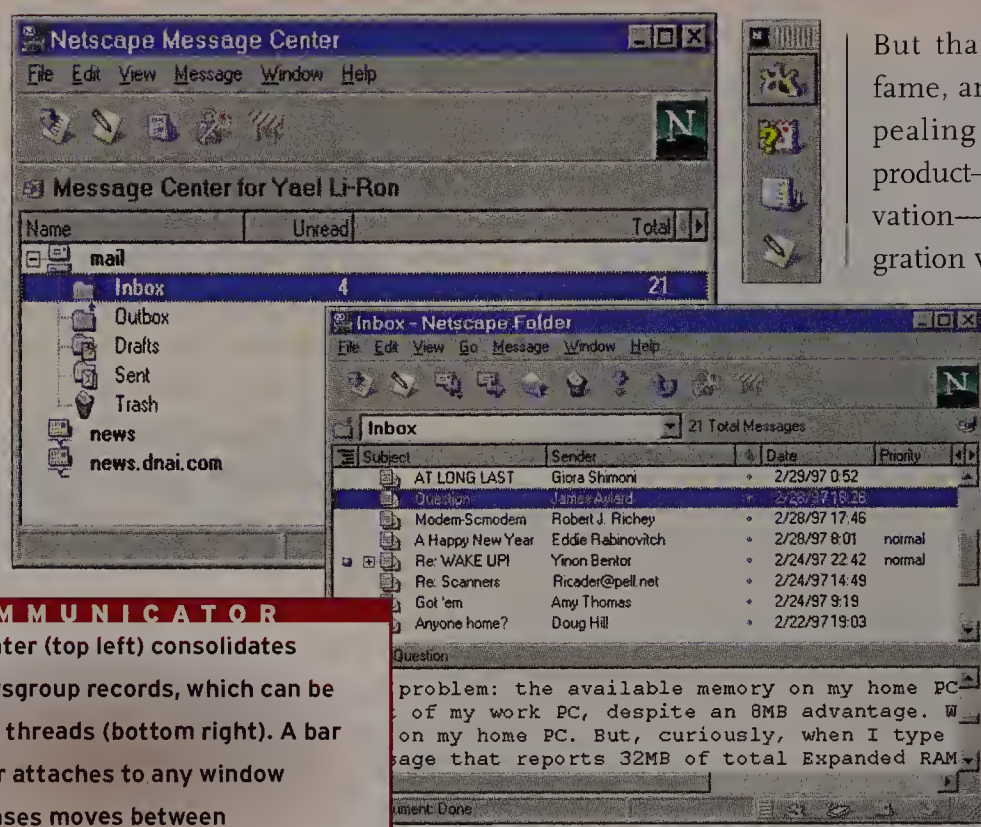
GET UP-TO-THE-MINUTE NEWS, including RealAudio daily news summaries, hot game demos, and productivity shareware, at PC World Online. Just point your browser to http://www.pcworld.com/news.html.

from a favorite site, because that site is now available as an icon on the toolbar. Navigator supports HTML 3.2, but some proprietary HTML tags that were presented by Netscape to the World Wide Web Consortium for approval were implemented before the W3C had time to consider them. So much for open standards—but Microsoft is doing the exact same thing with its own proposed extensions to HTML.

The most interesting new tag is <LAYER>, which allows designers to place elements in specific screen coordinates and provides superb overlapping. This feature brings unprecedented DTP-like capabilities to HTML design.

Netscape also will add Constellation, its push technology offering (see "Web Performance Enhancers," page 66). Finally, Communicator simplifies and automates the installation of plug-ins.

A tiny four-button toolbar lets you switch between these components. It can be anchored to the status bar of each Communicator program or detached and set to float. A professional edition of Communicator will also include a calendar tool for the scheduling of people and resources, and an IS manager's program to permit centralized management of all the aspects of the suite.



COMMUNICATOR

Message Center (top left) consolidates mail and newsgroup records, which can be organized by threads (bottom right). A bar that floats or attaches to any window (top right) eases moves between Communicator's components.

INTERNET EXPLORER 4

IE 4 WAS not yet available in beta as we went to press. A Microsoft representative said the beta would likely be released by the end of March and would be available free from the company's Web site. Much of what I'm describing here isn't set in stone, as the product is evolving rapidly. But it's not far-fetched to assume that Microsoft is currently dissecting Communicator to molecular level, figuring out where and how to one-up the competition.

In order to have a genuine apples-to-apples comparison, one would need to assemble several Microsoft products in addition to IE 4.

> Communicator brings unprecedented DTP-like capabilities to HTML design.

■ **A Web/desktop hybrid** As a Web browser, IE 4 doesn't seem to offer much beyond evolutionary tweaks to IE 3. But that's not its claim to fame, anyway. The most appealing aspect of this new product—and its crucial innovation—is its complete integration with the Windows 95 and NT 4.0 environments (more accurately, with the *shell*, or interface) so it can function as the desktop and file manager. In other words, the user can opt to replace the existing Explorer shell, which is the Windows 95 and NT 4.0 interface, with IE 4. Browsing and managing files on your local system or local area network will be identical to browsing on the Web.

The interface is entirely HTML-aware, so all URLs you place on the desktop are "hot," and your pointer will become the familiar pointing hand when you move over them. You can use a wizard to design an HTML template that controls the way folders look, complete with textured background, logos, Rich Text, ta-

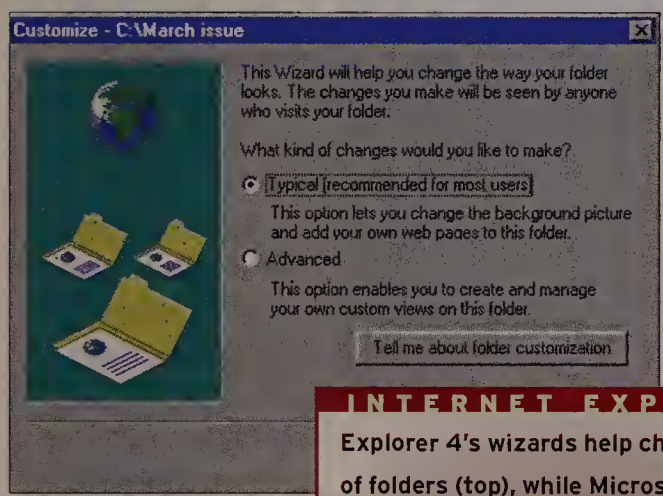
Communicator Versus Explorer—New Approaches

PRODUCTS	Overall approach	Groupware	HTML editing	Conferencing	E-mail	Web browsing	Content delivery
Communicator 4, $49.95 http://www.netscape.com	Cross-platform, integrated communications suite for work groups and individuals.	**Collabra:** Discussion forums enabled by news reader; calendar tool available in Professional Edition.	**Composer:** Simple HTML editor.	**Conference:** Internet phone, chat, and whiteboard.	**Messenger:** Supports encryption, Internet directories, and HTML-based Rich Text Format.	**Navigator:** Customizable, interface supports ActiveX and DTP-like layouts.	**Constellation:** Netscape's push technology, soon to be integrated into Communicator.
Internet Explorer 4, free http://www.microsoft.com/ie	Integrates Windows 95 and NT 4.0 desktops with the Web, creating an HTML-aware system and letting applications run within the browser.	**Outlook 97:** Free adjunct product offers group scheduling and more. **Internet News:** Add-on, standard news reader.	**FrontPad:** Simple HTML editor; included.	**NetMeeting 2:** Free adjunct product includes Internet phone, chat, whiteboard, and video-conferencing.	**Internet Mail:** Free adjunct e-mail client.	**Internet Explorer:** The old browser, with few changes so far.	**Active Desktop:** Uses dynamic HTML to deliver information interactively; included.

bles, movie and audio clips, and other elements that make a folder look and behave like a Web page.

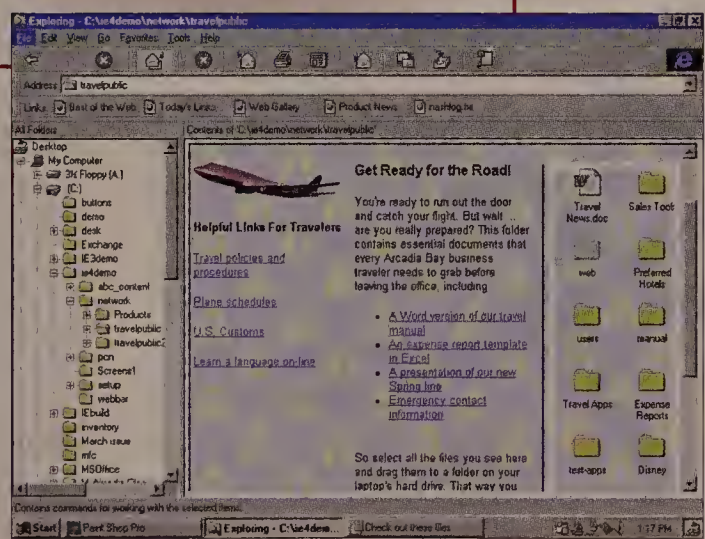
The template is saved in a hidden folder within the folder to which it applies, and it may be edited directly at any time by the HTML-savvy user or through the simple wizard. The pre-beta version of IE 4 doesn't let users establish a master template for a consistent look throughout the system, but Microsoft reports that feature will be implemented in the final release.

Netscape faces the formidable challenge of Microsoft's integration of IE 4 with the world's dominant OS.



INTERNET EXPLORER 4

Explorer 4's wizards help change the look of folders (top), while Microsoft's overall approach can make all your files look and behave like Web links. The image below is from a file on the local system's hard drive.



■ **Outlook 97** Outlook 97, the groupware solution from Office 97, will be a strong selling point when integrated with IE 4. Judging by reaction from early Office 97 adopters, Outlook 97 is sure to give Netscape's Collabra a run for its money.

■ **FrontPad** Microsoft says the forthcoming HTML editor will be bundled with Internet Explorer 4; it should be roughly equivalent to Netscape's Composer editing tool.

■ **NetMeeting 2** Currently in beta, NetMeeting 2 offers chat, a whiteboard, Internet telephone, and even videoconferencing. It's designed to enable a videoconferencing session with any H.323-compliant program from any vendor.

■ **Internet Mail and Internet News** New versions of Microsoft's e-mail client and its news reader—add-on products—were not available for assessment. Mail will support encryption, Microsoft says, and both products will support LDAP.

■ **Active Desktop** A client-side tool lets users receive push broadcasts from content providers such as PointCast. Interactivity in Active Desktop is based on Microsoft's new Dynamic HTML technology, which allows system administrators to create interactive elements without the need for programming. Dynamic HTML has been presented to W3C for consideration.

Separate products aren't scheduled to be offered as an integrated package—at least not at this point—but they all work together smoothly, based on what I've seen in IE 3 and Outlook. Integration often proves to be primarily a matter of semantics.

WHICH APPROACH WILL WIN?

ONLY TIME will tell whether corporate partners and IS managers buy into Netscape's vision of open standards and abandon the established, if proprietary, e-mail and collaboration products they've standardized on. Corel's recent decision to license Communicator—and integrate it into Corel productivity suites—bodes well for Netscape. If IS managers also sign on, you can look forward to using Communicator as your communications mainstay. But Netscape faces the formidable challenge of Microsoft's integration of IE 4 with the world's dominant operating system.

The real winner, then, will emerge in the interoperability battlefield: Will Microsoft's operating systems prevail, or will platform independence change the way that we do things? The rest of the computer industry currently finds itself grappling with the very same question.

—*Yael Li-Ron* ▶

flat-rate pricing late last year. The plan increased both the number of subscribers and the time they spend online. The suit could affect the future of online services. Expect ISPs to offer higher priced options with guarantees and enhanced services, says IDC analyst Ted Julian.

Notebooks With Mongo Screens

AMS, NEC, and Toshiba have announced notebooks with 13.3-inch active-matrix displays, the largest screens currently available. The displays offer a viewable area that matches or exceeds that of 15-inch CRT monitors. NEC's $6399 Versa 6200 series includes a Pentium MMX-166 CPU, a 2.1GB hard drive, a 10X CD-ROM drive, and 32MB of RAM. Toshiba's similarly equipped Tecra 740CDT will run about $6499. AMS's TravelPro 2000CX will include a P-150 processor and cost $4695. These behemoths have a couple of drawbacks worth noting: The products will initially be scarce, and their oversize screens may make them too unwieldy to use in an airplane seat.

Another Delay for DVD-ROM

A NEW SNAG will prevent DVD-ROM drives from shipping before April. Last December DVD-ROM drive makers pledged to ship the first drives to PC manufacturers in late January. (Drives were originally scheduled to ship last fall.) But the devices are ▶

Browser Accelerators: Mixed Bag of Tricks

INTERNET

HUMANKIND'S never-ending quest for improved Internet performance has given rise to a new breed of software: the browser accelerator. Unlike offline browsers and push technologies, which automatically retrieve and send Web information while you're busy doing other things, an accelerator employs software tricks so it can goose the performance of your browser while you surf.

We examined two early contenders in the accelerator race—Datalytics' $50 Blaze Web Performance Pack, and Peak Technologies' $30 Net.Jet. Blaze and Net.Jet work transparently through your browser, using *read-ahead browsing* technology: While you're reading a Web page, the accelerators download links from that page, along with updated versions of other pages you visit frequently. The products work best for people who visit the same Web sites regularly. In informal tests, we found mixed results.

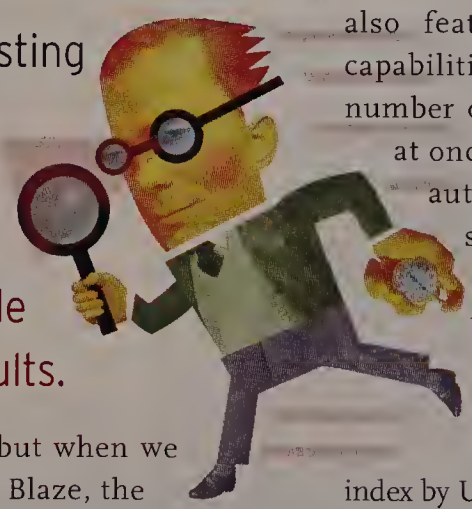
BLAZE SPEEDS your browsing of sites designed for it, and the toolbar (upper right) includes search and indexing tools.

BLAZING A TRAIL

BLAZE'S READ-AHEAD browsing wasn't functioning in the beta version we examined, but we were able to evaluate its impressive xSpeed acceleration technology. Most Web pages have multiple types of files—basic HTML, graphics, and Java applets, for example. Using xSpeed, Blaze packs several files into one or two bundles, reducing the number of trips your browser has to make to each page—greatly speeding up performance.

However, your system and the Web server from which you download pages must both incorporate xSpeed technology. Our informal testing with xSpeed-compliant sites provided by Datalytics yielded remarkable results. A graphics-intensive page loaded in approximately 50 seconds when we used Internet Explorer 3.0 and a 28.8-kbps modem; but when we added Blaze, the load times averaged only half as long.

Informal testing with xSpeed-compliant sites yielded remarkable results.



Blaze's usefulness depends on the adoption of xSpeed server technologies, which Datalytics provides free of charge. But skepticism runs high. Anything that requires universal adoption probably won't happen, says John Robb, a senior analyst with Forrester Research in Cambridge, Massachusetts. At press time, Datalytics had not disclosed the number of xSpeed-compliant Web sites.

Blaze also boasts read-ahead caching features designed for different types of browsing. For example, you can set Blaze to preload all pages that are one level away from a home page. This tactic can help when you want to move quickly among a site's first-level pages—as you do with most news sites—but won't be following deeper links. Blaze also features metasearch capabilities for using a number of search engines at once, and it's able to automatically create searchable indexes of cached sites through a familiar Windows Explorer–type interface. You can search your index by URL, by title, or even by keyword—a handy solution for locating the information that you forgot to bookmark.

NET.JET TURBULENCE

WHILE NET.JET produced some performance improvements, we ran into some significant problems with the shipping version. Installation on Internet Explorer 3.0 was simple, but getting the accelerator to work with Netscape Navigator 3.01 required a call to the vendor. While Net.Jet speeded up the loading of pages that were mostly text, we saw no noticeable improvement on Web pages with lots of graphics. (For another take on Net.Jet, see *Home Office.*)

Despite limitations, both accelerators show promise. Net.Jet can enhance Web performance, particularly if you turn graphics off while you browse. Blaze should include similar technology, but we couldn't test it at press time. Blaze's other acceleration feature, xSpeed, is impressive, but it's too early to tell how many Web sites will support it. If you tend to visit the same Web sites regularly, offline browsers may be better for you.

—*Glenn McDonald*

Blaze Web Performance Pack

PRO: Superb performance.

CON: Fully functional only on compliant Web sites; pricey.

VALUE: If popular Web sites adopt this technology, product could become a winner.

Datalytics
937/226-7700
http://www.xspeed.com
Street price: $50 (introductory; may rise to $90)
READER SERVICE NO. 810

Net.Jet

PRO: Can accelerate browsing of text-intensive pages.

CON: Improvement inconsistent.

VALUE: May boost performance in certain situations.

Peak Technologies
800/453-5322
http://www.peak-media.com/
Street price: $30
READER SERVICE NO. 811

ILLUSTRATIONS: GORDON STUDER

New Intel Packaging Should Mean Easier, Faster Upgrades

FIRST LOOK

INTEL PLANS TO give its desktop and notebook CPUs a facelift. To keep pace with the increasing speed and density of PC processors, the company will mount its CPUs on processor cards that it says will permit higher performance and should make CPU upgrades easier for end users. The new designs should also help PC makers deal with issues such as heat dissipation and electromagnetic emissions, potentially cutting the time required for new models to come to market.

BUILT FOR KLAMATH

THE NEW Intel scheme will appear first in the next version of the Pentium Pro—the so-called Klamath processor—expected by June. The company will package the Klamath and successive processors inside a single-edge contact cartridge, called the SEC, which plugs into a motherboard slot in much the way add-in cards do. (Currently, CPUs attach via a pin grid that is tricky to insert.)

Most important, the cartridge design positions P6-generation processors, such as Klamath, for the mainstream. The current Pentium Pro design puts the CPU and the 256K secondary cache into the same pin-grid-array packaging. This arrangement provides high-speed cache performance, but any flaw in the cache renders the entire CPU worthless. The result: lower yields that drive consumer costs higher.

SEC places Klamath's secondary cache outside the processor but on the same CPU board, a setup that lets Intel increase clock speed beyond 200 MHz while improving manufacturing yields. This solution addresses the current Pentium Pro's 200-MHz ceiling.

For PC users, the SEC cartridge should make upgrading a CPU as easy as swapping add-in cards, since there will be no pesky pins to break, and no confusion about which way to orient the CPU when placing it in the socket. Of course, we won't be seeing upgrades to Klamath-level CPUs until at least 1998. PC vendors may also need to redesign their systems to ensure proper ventilation and to make room for the SEC cartridge. Intel competitors AMD and Cyrix have no current plans to provide processors that accommodate the new Intel design. But both of these companies plan to introduce *x*86-compatible CPUs for existing Pentium sockets.

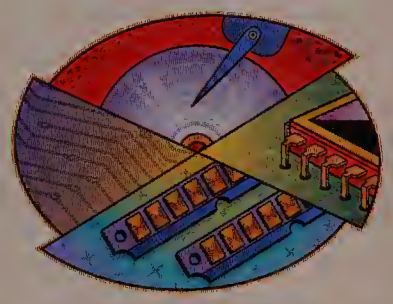
MOBILE MODULES FOR LAPTOPS

INTEL HAS ALSO launched a similar initiative on the notebook front, albeit with different motives. In the fall, the manufacturer expects to introduce mobile modules that place the CPU, secondary cache, and system chip set on a daughtercard. The design should let notebook makers adopt new CPUs without the expensive process of redesigning existing motherboards, which can delay product introduction and add cost.

While notebook vendors like Dell and NEC welcome Intel's mobile module design, Toshiba executives are concerned that the daughtercard could make notebooks thicker and reduce heat-management options. But Nathan Brookwood, principal analyst for microprocessors at research firm Dataquest, calls the mobile module design "a very nifty strategy for moving notebooks from Pentium to Pentium Pro."

—*Michael Desmond* ▶

being held up due to a last-minute squabble over copy protection issues, says Ken Jones, director of DVD marketing for Toshiba America Information Systems. On the software front, few DVD-ROM titles are expected this spring. Also, Microsoft hasn't finished the requisite Windows 95 DVD-ROM device drivers, which are expected sometime in 1997.



TidBytes

P-166 ALTERNATIVE: Advanced Micro Devices' new AMD-K5-PR166 will perform like a 166-MHz Intel Pentium, AMD claims. Expect to see PCs sporting the chip by May. The systems will likely cost less than computers powered by Intel P-166s. **Digital Camera for Notebooks:** Toshiba's $500 PDR-2A 24-bit color digital camera connects to a notebook via a built-in PC Card connector. The PDR-2A stores images in JPEG format and works with any OLE 2.0-compliant application, letting you drag and drop images into your documents. **Real PC, Surreal Price:** The Packard Bell C115 system includes a Pentium-120 processor, 16MB of RAM, a 1.2GB hard drive, an 8X CD-ROM drive, a 33.6-kbps modem, a 14-inch monitor, MPEG-1 video playback, a 16-bit sound card, and stereo speakers—for a street price under $1000. This is the latest (and likely not the last) entrant in this class of low-price, full-featured products. At press time, rumors were circulating that top-tier vendors such as IBM plan to offer systems in this price range.

Web Performance Enhancers: Don't Let Them Push You Around

DR. DOOLITTLE'S Push-Me-Pull-You, a llama with two heads pointing in opposite directions, had a hard time making decisions. The poor animal had problems getting anywhere at all. You may empathize with this beast as you face the dozen or so new products sporting "push" and "pull" technologies that promise to reduce the time you spend downloading Web pages.

Push products, like the PointCast Network from industry leader PointCast, automatically send personalized Web content to your PC as soon as you connect to the Net. You choose from "channels" that specialize in news, sports, stock prices, weather, and so on. Many of the new push products are long on concept but short on usefulness. With few exceptions, the ones that we tested are difficult to install, offer content of limited interest to businesses, and require extensive hardware and Internet resources.

Pull products, sometimes called offline browsers, let you search the Web and retrieve information from favorite sites at predetermined times. Instead of waiting for Web pages to download, you might set one of these utilities to work while you sleep. When you get up, the latest info from your chosen sites is on your PC. We looked at the latest versions of these products and found them very useful.

NEWSCATCHER uses hardware and a wireless network to bring news to your desktop.

THE PUSH CONCEPT: CONTENT IS KING

PUSH PRODUCTS are free to PC users; advertisers pay for the right to display their messages along with any content. The free software, which you can download from the vendors' Web sites, includes a viewer application that installs on your PC. Push products also include *agent* programs that work automatically in the background to gather personalized information while you're connected to the Web. After the agents gather content, you can view it immediately without having to connect to the Internet. Most products wait until your PC is idle and then notify you by presenting a screen saver with a menu of information or by scrolling a ticker tape of choices across your screen. You click an icon to view information.

Be sure to choose the push product whose content most closely matches your interests and needs. Each service has its own focus, and some of them are better at delivering timely data (see chart).

Unfortunately, push products are resource hogs, so you may want to pass if you have an older computer. Although companies claim a 486-based system is all you need, I saw noticeable slowdowns if I used anything less than a Pentium-133. And performance worsens if your Internet connection is slower than 28.8 kilobits per second. As a result, push products are best for offices that have a local area network and a dedicated Internet connection. Even if you have a high-end PC and a fast Net connection, you'll need to choose carefully—you won't be able to use more than one product at a time. When I tried using more than one, my system locked up completely.

PointCast popularized the push concept, but other products are nipping at its heels. FreeLoader 2.0's unique approach lets you create a personal set of channels based on your preferences. During installation you are asked to provide demographic information—location, age, ▶

PHOTOGRAPH: JOHN GREENLEIGH

INFORMATION PUSHERS

PRODUCTS	Content	Notification	Comments	Reader service number
BackWeb, BackWeb Technologies 800/863-0100 http://www.backweb.com	business, lifestyle, shopping, technology, weather	screen saver, scrolling banner, wallpaper	PRO: Best choice for online shopping; free. CON: Slows PC when background agent is working.	796
Communicator, Intermind 800/814-4134 http://www.intermind.com	business, health, news, politics, science, technology	on-screen message	PRO: Wide range of content, best choice for businesses; free. CON: Slows PC when background agent is working.	797
FreeLoader 2.0, FreeLoader, Inc. 415/626-8500 http://www.freeloader.com	entertainment, home	screen saver	PRO: Easiest to set up, new multimedia features; free. CON: Most intrusive advertisements.	798
NewsCatcher, Global Village Communication 408/523-1000 http://www.globalvillage.com	basic: news, sports, weather; expanded: basic plus stocks	sound, toolbar icons	PRO: Unaffected by Net traffic, uses minimal system resources. CON: Costs $149; basic service free; expanded $5.95 monthly; expanded with e-mail notification $9.95 monthly.	799
PointCast Network, PointCast 408/253-0894 http://www.pointcast.com	business, news, stocks, technology, weather	screen saver	PRO: Industry leader, established technology; free. CON: Internet bandwidth hog.	800

All products: 915

When it comes to scanners, not all 800 pound gorillas are what they're cracked up to be.

If you need a scanner that combines high performance and maximum value, may we suggest a little head-to-head competition. UMAX vs HP? Unfair comparison? Maybe for them. UMAX has a reputation for offering advanced, award-winning scanners at prices that make good business sense. Plus, our software bundles are unmatched, even by the big boys. So why monkey around? Compare the UMAX Vista S-12 with the HP ScanJet 4c and decide for yourself.

Compare	UMAX Vista S-12	HP ScanJet 4c
Image editor software	✔ Adobe Photoshop Full	Photopaint
Presentation software	✔ ASAP Word Power	None
Maximum DPI	✔ 9600	2400
Bit depth	✔ 33-bit[1]	30-bit
Scanning speed (5" x 7" color photo)	✔ 18 sec.	42 sec.
Lamp	✔ Cold cathode - lasts longer	Fluorescent
Tech support	✔ Toll free	No 800 number
Price	✔ $699[2]	$ 938[3]

UMAX Vista S-12

UMAX

HP ScanJet 4c

toll free **800-859-2728**

http://www.umax.com

[1] 33-bit equivalent with the analog gamma correction. [2] Estimated street price after $50 mail-in rebate. [3] Average street price from sampled advertisements in Computer Shopper Sept. 1996.

© Copyright 1996-1997 UMAX Technologies, Inc. HP and HP ScanJet 4c are registered trademarks of Hewlett Packard, Inc. Adobe Photoshop is a registered trademark of Adobe, Inc. ASAP Word Power is a registered trademark of Software Publishing Corp. All other trademarks are the property of their respective owners.

Circle 250 on reader service card

Sure, A Monitor Shou
But It's What's On Th

At Compaq, we haven't forgotten what you look for in monitors. Still, we think there should be more to them than just sharp, crisp images (not that there's anything wrong with that). Which brings us to our new line of monitors.

The first thing you'll notice is their sleek new design and advanced on-screen controls for easy and precise adjustments. Of course, upon closer inspection, you'll see they've been engineered through and through to the same high standards that have made our PCs among the best on the planet. Which is why the line features a complete range of innovative monitors. Everything from a value series — including our V50 15" (13.77" viewable) — to high-performance models like our QVision 210 21" (19.5" viewable).

Of course, there's also our P70, a 17" (15.68" viewable)

The Compaq V70 monitor won both the PC Magazine Editors' Choice award and the Windows Magazine Best award in October 1996. The Compaq QVision 210 monitor won the PC World Best Buy award in January and November 1996. *When used with Compaq CPUs which feature Intelligent Manageability. ©1996 Compaq Computer Corporation. All rights reserved. Compaq registered U.S. Patent and Trademark Office. QVision 210 is a trademark of Compaq Computer Corporation. Other products mentioned may be trademarks or registered trademarks of their respective companies.

D Be Nice To Look At. Inside That Counts.

Trinitron tube monitor that delivers an impressive 85 Hz at a resolution of 1280 x 1024. You'll find it's perfect for graphic-intensive applications as well as Windows 95 and Windows NT.

Speaking of features, all monitors provide the very things you've asked for. Like best-of-class refresh rates at superior resolutions. There's also anti-glare technology for reduced eye strain. Even Intelligent Manageability capabilities that let you track inventory and manage problems across a network.*

In other words, the line embodies everything you've come to expect from Compaq. Substance. Quality. And, yes, even good looks. To learn more, visit us at www.compaq.com or call 1-800-869-6865.

COMPAQ

Has It Changed Your Life Yet?

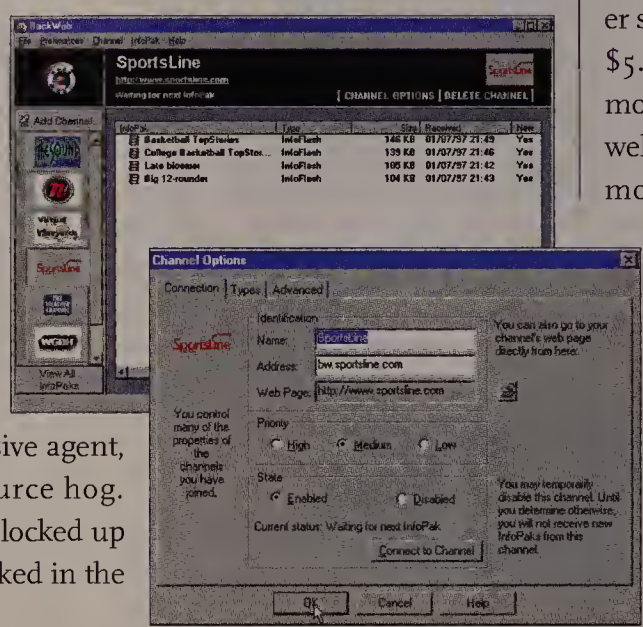
Circle 35 on reader service card

profession, and income. You can also create your own set of channels at any time. Content is focused mainly for home users. FreeLoader lets you control the frequency of channel updates and notifies you of new content via a screen saver.

BackWeb has a consumer-oriented list of channels, including astrology, dating and singles information, music, PBS, and the Weather Channel, plus some technical and business channels. Plus, BackWeb is the only product reviewed here that gives you a choice of notification methods: You can use alerts that flash on screen, a full screen saver, or wallpaper. Its intrusive agent, however, is a resource hog. Even a Pentium-133 locked up while BackWeb worked in the background.

Intermind's Communicator lets you choose from business, health, news, politics, science, and technology. The product was one of the easiest to install, and its agent slowed my system down the least.

A viable alternative to system-hogging Internet agents is Global Village's unique $149 NewsCatcher, which uses AirMedia's nationwide wireless data broadcasting service to receive and display data on your computer screen. Basic news, sports, and weather service are free, and an extra $5.95 per month gets you more-detailed information, as well as stock prices; $9.95 per month buys all of the above plus personal e-mail notification, with a message sent to the NewsCatcher when e-mail arrives in your Internet in-box.



SPECIAL DELIVERY: BackWeb sends a variety of Web channels to your PC, including news and sports (top). It includes a variety of features that allow you to customize the way channels are delivered (left).

OFFLINE BROWSERS

PRODUCTS	List price	Unique feature	Comments	Reader service number
Netriever 2.0, Metz Software 800/447-1712 http://www.metz.com	$39	creates slide shows of downloaded sites	PRO: Doesn't require external browser. CON: Limited control over downloads.	801
WebWhacker 2.0, The ForeFront Group 800/653-4933 http://www.ffg.com	$49.95	now searches downloaded sites	PRO: Extensive control over downloads. CON: Time-consuming setup.	802
WebEx 2.0, Traveling Software 800/343-8080 http://www.travsoft.com	$49.95	logs in and retrieves automatically	PRO: Easiest to use, improved interface. CON: Lacks some advanced features.	803

DON'T PUSH, PULL

UNLIKE PUSH products, which have limited content, offline browsers let you choose any sites you're interested in, then download as much of the site as you want. You can browse sites at your leisure without being connected to the Web. The latest pull products are inexpensive, work with your existing browser, and include useful new features. For example, Netriever 2.0 doesn't require a separate browser, and it can create slide shows of Web sites for you to use as wallpaper or screen savers. This feature allows you to scroll quickly through a Web site offline.

WebWhacker 2.0 lets you determine how much of a ▶

EXPLOSION OF PUSH PRODUCTS CROWDS MARKET

Push to the Future

AT PRESS TIME, at least a dozen companies were hyping products based on push technology, with industry observers predicting this number to double within the next few months. But these products are still unproven and will not operate with each other, so a shakeout is inevitable. Here are some developments to watch:

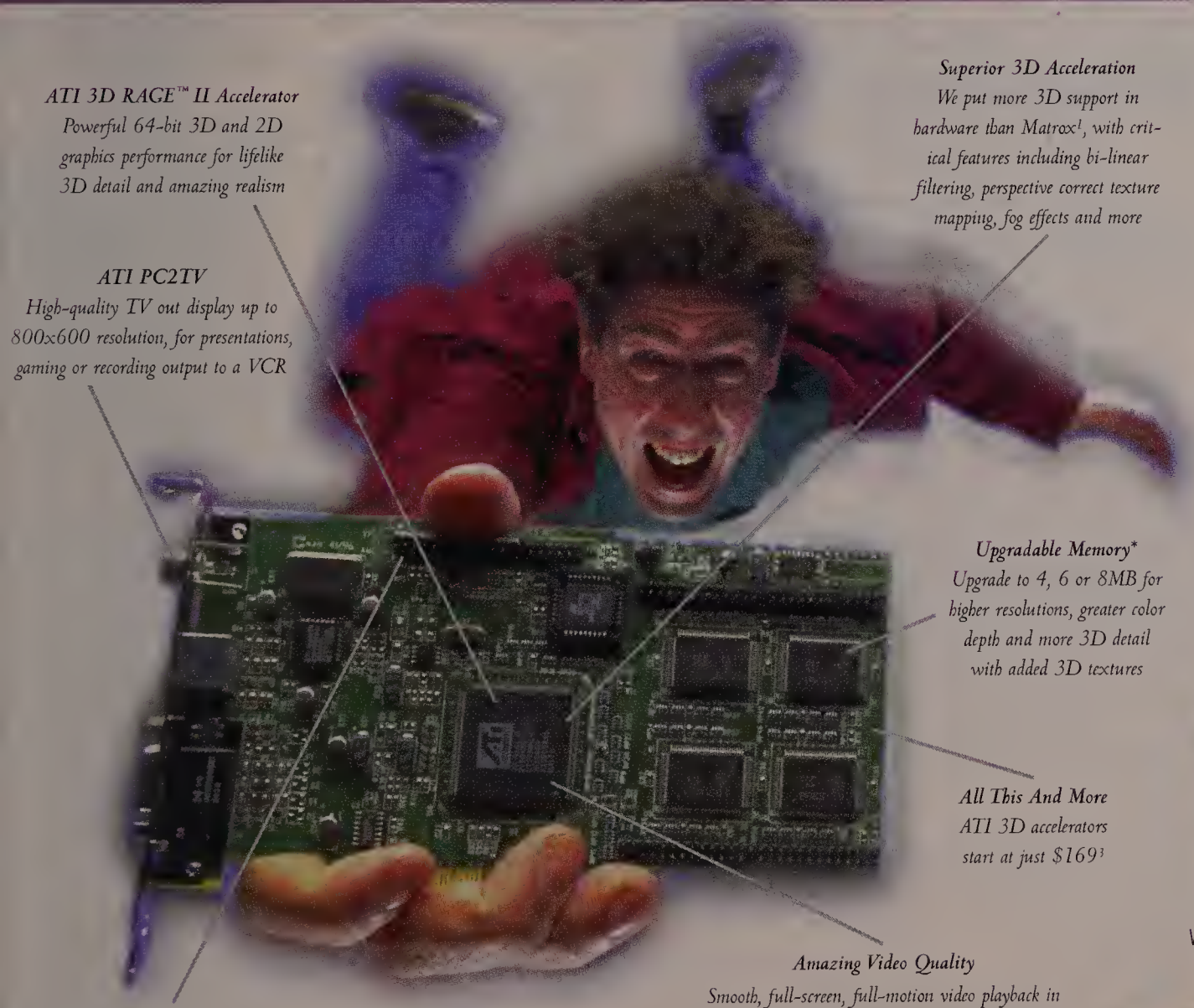
PointCast signed an agreement with Microsoft. Under the agreement, PointCast will become an integral part of Microsoft's browser, and content from MSNBC will be available as a PointCast channel.

Netscape is touting **Constellation,** its own push technology. Later this year, Constellation is scheduled to be integrated into Netscape's Communicator Internet suite. Last fall, Netscape CEO Jim Barksdale said that Constellation would incorporate Castanet push technology from Marimba. Castanet (which has been in beta since last summer) holds promise because its Java-based technology doesn't require as many PC resources as competing push products.

Online services are also joining the push. American Online's **Driveway** should be in beta by the time you read this. Initially, Driveway will automatically deliver selected news, weather, sports, and Web sites, and a spokesperson says that all AOL content will eventually become available for delivery.

Vendors are also addressing bandwidth concerns and a lack of standards. Tibco, a company that provides information to banks and stockbrokers, has teamed with Cisco Systems, a leading provider of networking and intranet hardware, and several other companies to propose a standard—called **Publish and Subscribe**—for push data. The group claims a widespread standard would "fix the plumbing" of the Internet and vastly reduce Net traffic, extending the life of the current infrastructure. It's too early to say whether the new standard would make discrete push products compatible.

What a concept! You want blistering Hot Graphics Performance? Build it into the Hardware.



ATI 3D RAGE™ II Accelerator
Powerful 64-bit 3D and 2D graphics performance for lifelike 3D detail and amazing realism

ATI PC2TV
High-quality TV out display up to 800x600 resolution, for presentations, gaming or recording output to a VCR

ATI Multimedia Expansion
Upgrade to powerful, low cost options such as the ATI-TV™ tuner

Superior 3D Acceleration
We put more 3D support in hardware than Matrox[1], with critical features including bi-linear filtering, perspective correct texture mapping, fog effects and more

*Upgradable Memory**
Upgrade to 4, 6 or 8MB for higher resolutions, greater color depth and more 3D detail with added 3D textures

All This And More
ATI 3D accelerators start at just $169[3]

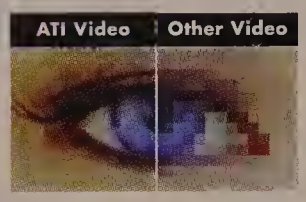
Amazing Video Quality
Smooth, full-screen, full-motion video playback in 16.7 million colors regardless of graphics mode – not available from Matrox[2]

You'll find the same advanced ATI 3D technology in hot new systems from IBM, Sony, NEC, Gateway, Acer and many other leading manufacturers.

SUPERIOR HARDWARE ACCELERATION	ATI 3D XPRESSION+ PC2TV	MATROX MYSTIQUE
BI-LINEAR TEXTURE FILTERING	■	
FOG EFFECTS	■	
PERSPECTIVE CORRECT TEXTURE MAPS	■	■
TRANSPARENCY (ALPHA BLENDING)	■	
TRUE COLOR VIDEO IN ANY MODE	■	

We pack more advanced features into hardware than anyone, so naturally, nobody can touch our performance.

Our exclusive PC2TV feature uses your big-screen TV as a monitor for in-your-face gaming and riveting presentations. Or send output directly to your VCR.



Experience visibly superior full-screen, full-motion MPEG video playback† either with Windows 95 or Windows 3.1x.

It only makes sense – the more features you build into your hardware, the more performance you get back out. So we engineered more advanced 3D, 2D and video right onto our graphics accelerator upgrade cards than Matrox or Diamond. So you get stunning speed and a dazzling display. The kind you need to bring out the absolute best in both appearance and performance, whether it's for business presentations, games, multimedia or the web. So don't wait. See your dealer today.

Get more details at **www.atitech.com**. Or call us at 905 882-2600 (press 2 for faxback).

*ATI 3D PRO TURBO PC2TV (4MB upgradable or 8MB) delivers high-end 3D, 2D and video performance, and comes with Extreme 3D. Or choose ATI 3D XPRESSION+ PC2TV (2MB upgradable to 4MB) with today's hottest 3D games and VRML web browser free.

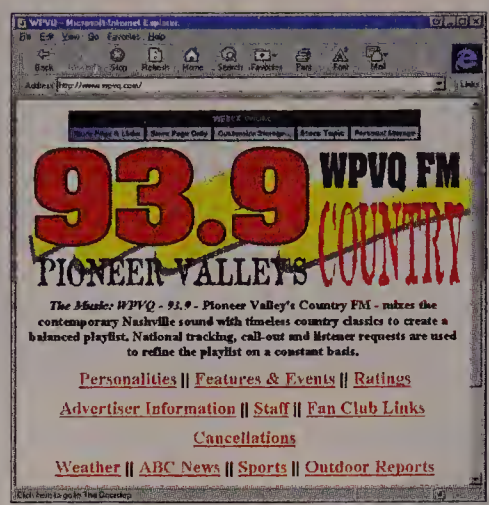
© ATI Technologies Inc., 1997. ATI, 3D PRO TURBO PC2TV, 3D XPRESSION+ PC2TV, 3D RAGE, ATI-TV and Now You See It are trademarks and/or registered trademarks of ATI Technologies Inc. All other product names are trademarks and/or registered trademarks of their respective owners. Matrox Mystique does not support [1] bi-linear texture filtering, fog or alpha blending in hardware, or [2] 16.7 million color video in all graphics modes. [3] ESP for 3D XPRESSION+ PC2TV with 2MB. †Simulation of quality with scaled video.

Circle 5 on reader service card

Now You See It.™

Web site you want to retrieve. For example, you can download title pages only, just linked pages, or the entire site. The product now has powerful bookmarking features. But what sets WebWhacker apart is a powerful search engine that lets you perform Boolean searches on data you've downloaded.

WebEx 2.0 is one of the easiest offline browsers to use, unique for automated sessions that can grab Web sites at scheduled intervals.



GRAB THAT SITE: WebEx adds a small toolbar that lets you retrieve Web sites for offline viewing, or schedule downloads.

HAVE IT YOUR WAY

ALTHOUGH THIS brand-new generation of push products has become a prime focus of Internet industry attention (not to mention hype), the products are still in their infancy.

Your arsenal of Web tools should also include standard browsers and pull products. The majority of today's users will still find that they need to search the Internet frequently for information that cannot be planned or predicted.

If you hit the same Web sites repeatedly and download the same types of information on a regular basis, pull products are effective and easy to use, saving money and online time. Push products have the potential for making major changes in the way you use the Internet, but until they become more sophisticated and less resource intensive, we can't recommend them.

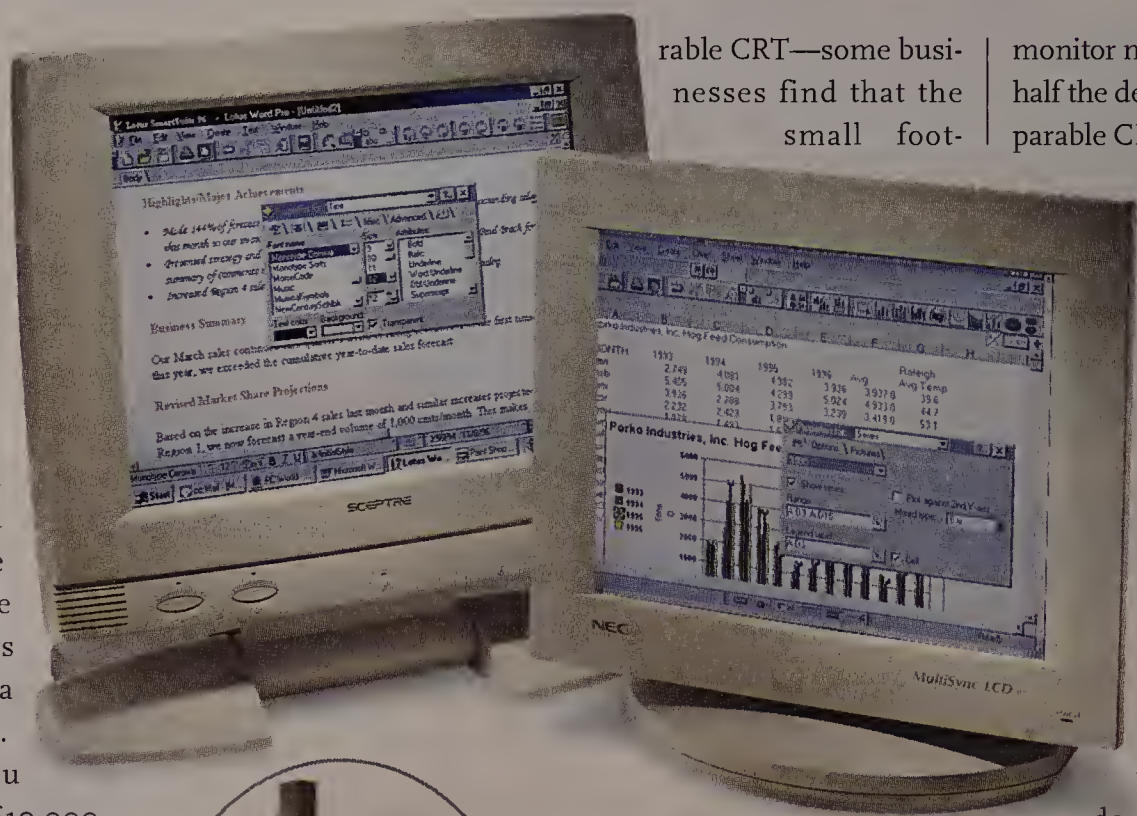
—Stan Miastkowski

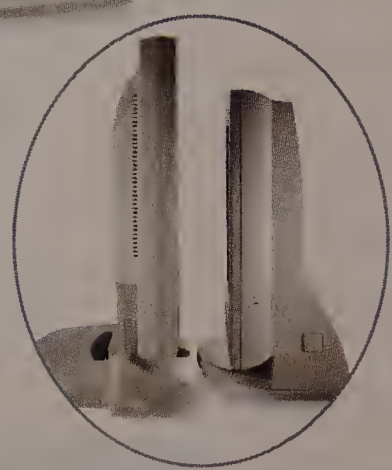
Is an LCD Monitor in Your Future? Prices Are Shrinking, Screens Growing

WITH monitors, as in fashion, thin is in. For sheer good looks it's hard to beat the slim profile and bright, virtually distortion-free image of a flat-panel LCD monitor—especially as the screen sizes increase and prices decrease. We tested some of the newest LCD monitors and found them on a par with CRT displays.

Two years ago, you could pay more than $10,000 for a 12.1-inch LCD desktop monitor, and larger models were simply unavailable. Today you can get a 12.1-inch active-matrix display for less than $2000; larger units are available for as little as $2500. (A 12.1-inch LCD offers the same viewable screen area as a 14-inch CRT monitor.)

Though most PC users will blanch when they see these prices—about three or four times more than for a comparable CRT—some businesses find that the small footprint and other unique features make LCDs worth the added expense.



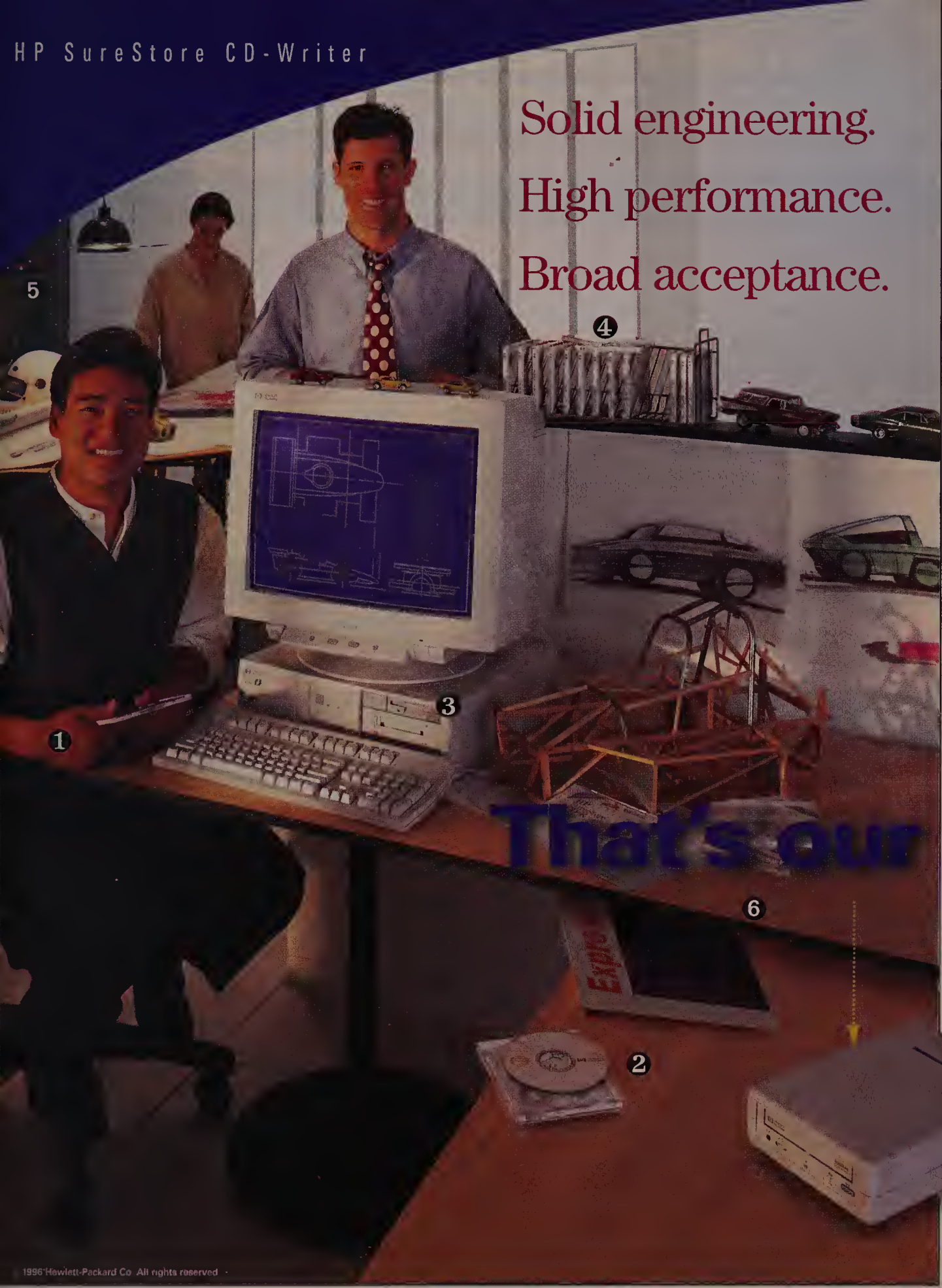


ROOM TO VIEW: LCD monitors, like the Sceptre (left) and NEC, measure up to CRT displays in most respects, and the LCDs require a lot less desk space.

Smaller monitors can be real space savers. (An LCD monitor may take up less than half the desk space that a comparable CRT requires.) Hospitals prefer LCDs, because they don't emit the electromagnetic waves that could interfere with sensitive medical equipment. Graphic designers appreciate the image quality that LCDs provide: Straight lines don't look bowed the way they sometimes do on CRT screens. Lower heat emission, combined with power savings of up to 40 percent over comparable CRT consumption, appeals to just about everybody. LCDs also weigh about half as much as CRTs.

SHOPPING LIST

LCDS DIFFER from CRT monitors in several ways. First, screen sizes for compara- ▶



1996 Hewlett-Packard Co. All rights reserved.

The new HP SureStore CD-Writer 6020es

Introducing the new HP SureStore CD-Writer.

It's a fast paced world. To succeed, you have to make an impression. And there's no better way to make an impression than on CD using the new HP SureStore CD-Writer 6020 CD-Recordable drive. CD-Writer lets you ❶ record awesome multimedia presentations to take on the road. Or ❷ deliver CDs to clients and others with total confidence that it can play in millions of CD-ROM readers worldwide.

The robust software suite included with the CD-Writer lets you ❸ copy all your drafts to CD quickly and easily. And files stored on CD can be retrieved in seconds. It's ideal for ❹ creating permanent archives of your files. What's more, CD-Writer can ❺ make custom audio CDs that can be played on stereo CD players at home or in the car. CD-Writer is also a 6X* CD reader so it can ❻ play all your CD-ROMs smoothly. Now we're cruisin'.

Given all the things you can do with the HP SureStore CD-Writer, what's your drive? Check it out. Visit your reseller or call 1-800-826-4111 ext. 2268. Or you can steer toward the web and find HP SureStore CD-Writer at www.hp.com/go/cdr.

HEWLETT® PACKARD

*Actual speed may vary according to application used

LCD MONITORS

MONITORS	Street price	Screen diagonal (inches)/type	Maximum resolution	Weight (pounds)	Connects to standard video card	Full-motion video support	Mounts on wall	Availability	Reader service number
CTX Opto PanoView 600 888/289-6786	$2400	12.1/active	1024 x 768	8.6	●	○[1]	●	now	804
NEC MultiSync LCD300 800/632-4636	$5000	13/active	1280 x 1024	8	●	●	○	now	805
Portrait PageView [2] 800/858-7744	$1500	15/passive	1024 x 768	8	○	○[1]	●	May	806
Sceptre CD-1215T [2] 800/788-2878	$3000	15/active	1024 x 768	16	○	●	●	now	807
ViewSonic VP140 Flat Panel 800/888-8583	$2499	14/active	1024 x 768	12.1	●	○	●	now	808
Wysevision WY-9307 800/438-9973	$1545	12.1/active	800 x 600	13	●	●	●	April	809

● Yes ○ No [1] Optional card available later this year. [2] Not tested. All products: 916

ble LCDs are smaller because they reflect true viewing area, while CRT dimensions are inflated by the tube's curved surface and include the surrounding bezel. A 15-inch LCD monitor's viewing area is roughly equivalent to that of a 17-inch CRT monitor, while a 13-inch or 14-inch LCD is able to display as much as a 15-inch CRT.

Another consideration is screen type. As with notebooks, which use the same technology as the LCD monitors, the more-expensive active-matrix screens generally look brighter than passive LCD screens.

While most of the newer LCD models connect to standard video cards, a few require their own graphics adapters, which usually are included with the product.

Because of their relatively slow response time, some LCD monitors can't support full-motion 30-frame-per-second video adequately. This limitation doesn't affect the quality of games like Doom and Quake, which generally run at 10 to 15 frames per second. But if you want to view movies from a forthcoming DVD drive, you'll be best off choosing a display that has a response time of 100 milliseconds or less. Some monitors that don't yet support full-motion video will support it by the end of the year, using optional graphics adapters.

You will also want to consider an LCD monitor's viewing angle. If you have ever tried to peer over somebody's shoulder in order to view a notebook screen, you may have noticed that the colors fade depending on where you stand—particularly with passive LCD screens.

LCDs: Room With a Good View

LCD monitors meet or beat 15-inch CRTs.

MONITORS	Graphics rating	Text rating
NEC MultiSync LCD300	6.0	5.6
ViewSonic VP140 Flat Panel	7.5	6.5
Wysevision WY-9307	7.8	7.9
Average of three LCDs	7.1	6.7
Average of six 15-inch CRTs	6.6	6.6

HOW WE TEST Four judges used a point system to rate each monitor's text and graphics quality in displaying business letters, spreadsheets, Web pages, and scanned images. Higher ratings are better—10 is best.

A LOOK AT THE MONITORS

THE PC WORLD Test Center examined three active-matrix LCD monitors that you might want to consider as an alternative to a 14- or 15-inch CRT. We tested preproduction units of ViewSonic's $2499 VP140 Flat Panel and Wysevision's $1545 WY-9307, as well as the shipping model of NEC's $5000 MultiSync LCD300.

In screen distortion tests, the LCD monitors measured well below the 2 percent distortion level considered acceptable for CRT displays. In subjective ratings by panels of users, the results were similarly impressive. The reviewers found that LCDs were comparable to midrange 15-inch CRTs for both text and graphics. Among the LCD models we tested, the Wysevision received the highest subjective ratings for graphics and overall image quality—the unit was comparable to the best 15-inch CRTs that we've tested.

However, we had some notable problems with these LCD monitors. We could not get the Wysevision, ViewSonic, or NEC units to work with a popular video card, the Matrox Millennium. In addition, we had to struggle to get CTX Opto's PanoView 600 LCD monitor to work properly, and could not include it in testing.

Though we didn't test them, some larger LCDs are available. Fifteen-inch displays include Portrait's $1500 PageView and Sceptre's $3000 CD-1215T.

LCD SNAPSHOT

IF YOU WANT LCD technology but can't afford it, be patient: By 1999, prices on most 14- and 15-inch LCDs will drop to the $1600-to-$1800 range, according to Stanford Resources, a market research firm that tracks displays.

For now, larger LCD monitors are finally available for anyone whose job requires more desk space and distortion-free graphics.

—*Yardena Arar* ■

get help now!

AT&T

Return this card or call 1 800 WORLDNET, Ext. 106 for FREE AT&T WorldNet℠ Service software.

TO RUN AT&T WORLDNET SERVICE ON YOUR IBM COMPATIBLE PC YOU WILL NEED AT LEAST: 1. An 80386x processor or faster 2. Microsoft Windows® 3.1x, Windows® for Workgroups 3.11 or Windows® 95 3. 8 MB RAM and 11-36 MB of available hard disk space depending on platform 4. An internal or external modem running at 14.4 kilobits per second or faster 5. A phone line connected to your modem but not connected to a Local Area Network (LAN) or an ISDN line.

TO RUN AT&T WORLDNET SERVICE ON YOUR MACINTOSH, YOU WILL NEED AT LEAST: 1. Macintosh® or Power Macintosh® running System 7.1 or higher 2. Apple Open Transport 1.1+ (if using Open Transport) 3. 8 MB RAM (or more for better performance) and 11 MB of available hard disk space 4. An internal or external modem running at 14.4 kilobits per second or faster 5. A phone line connected to your modem but not connected to a Local Area Network (LAN) or an ISDN line.

1 800 WORLDNET, Ext. 106
www.att.com/worldnet/wis

name

address apt.

city state zip

home phone business phone

are you an AT&T Long Distance customer? ___yes or___no

do you own a ___PC or ___MAC?

do you prefer a ___CD-ROM or ___FLOPPY DISK?

do you have ___Windows 3.1X or ___Windows 95?

AT&T

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 1348 TRENTON NJ

POSTAGE WILL BE PAID BY ADDRESSEE

AT&T WORLDNET℠ SERVICE
MAIL STOP #255
4325 13TH AVENUE SW
FARGO ND 58103-9872

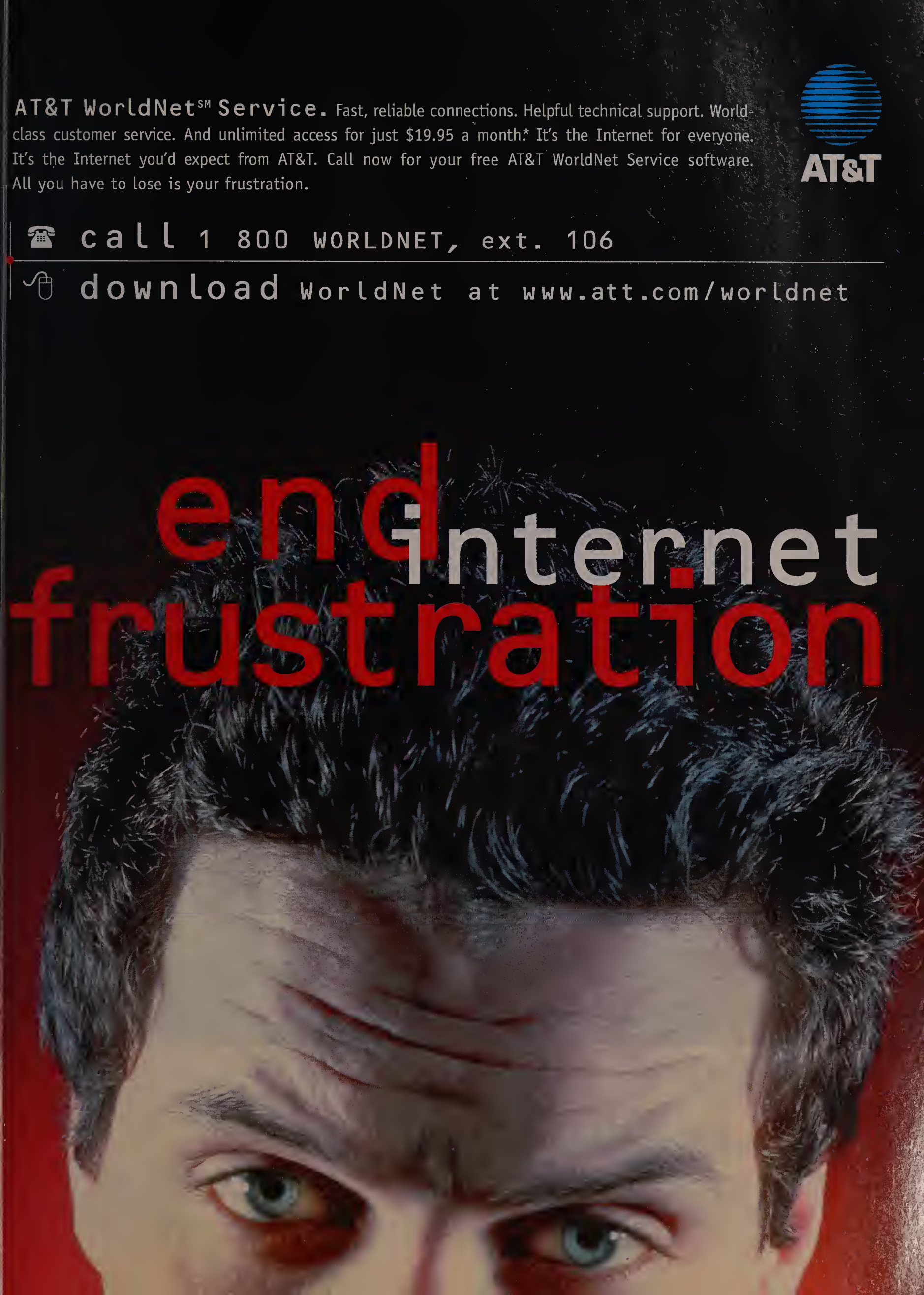
AT&T WorldNet℠ Service. Fast, reliable connections. Helpful technical support. World-class customer service. And unlimited access for just $19.95 a month.* It's the Internet for everyone. It's the Internet you'd expect from AT&T. Call now for your free AT&T WorldNet Service software. All you have to lose is your frustration.

AT&T

call 1 800 WORLDNET, ext. 106

download WorldNet at www.att.com/worldnet

end internet frustration



VOTED THE BEST SERVICE AND THE LEAST LIKELY TO

DELL DIMENSION™ XPS Pro200n
200MHz PENTIUM® PRO PROCESSOR

- Mini Tower Model
- ★ **64MB EDO Memory with ECC**
- 256KB Internal L2 Cache
- ★ ***NEW* 4.3GB Hard Drive (9.5ms)**
- ★ **20TD Trinitron® Monitor (19.0" v.i.s., .26dp, 1600 x 1200 max. res.)**
- Matrox Millennium 4MB WRAM Video Card
- 12X EIDE CD-ROM Drive
- AWE32 Wave Table Sound Card
- Altec ACS-290 Speakers with Subwoofer
- MS® Office 95 Pro with Bookshelf
- ★ **MS Office 97, Professional or Small Business Edition Upgrade Coupon***
- MS Windows NT® Workstation 4.0/ 30 Days Free Support/MS Mouse
- 3 Year Limited Warranty† with 1 Year On-site^Δ Service
- ★ *Upgrade to a 2GB SCSI UW Hard Drive (7200RPM, 8ms), Adaptec 2940UW Controller and 8X SCSI CD-ROM, add $234.*

$3999

Business Lease^◊: $144/Mo.
Order Code #500209

***NEW* DELL DIMENSION XPS M200s**
200MHz PENTIUM PROCESSOR
WITH MMX™ TECHNOLOGY

- Mini Tower Model
- ★ **32MB SDRAM Memory**
- 512KB Pipeline Burst Cache
- *NEW* 4.3GB Hard Drive (9.5ms)
- 17LS Monitor (15.7" v.i.s.)
- Matrox Millennium 4MB WRAM Video Card
- 12X EIDE CD-ROM Drive
- AWE32 Wave Table Upgrade Card
- ★ **Altec ACS-490 Full Dolby Surround Sound Speakers with Subwoofer**
- ★ **33.6 U.S. Robotics Telephony Modem**
- MS Office 95 Pro with Bookshelf
- ★ **MS Office 97, Professional or Small Business Edition Upgrade Coupon**
- FREE Norton/Visio Express Software Suite**
- MS Windows® 95/30 Days Free Support/MS Mouse
- 3 Year Limited Warranty with 1 Year On-site Service

$2999

Business Lease: $111/Mo.
Order Code #500205

intel inside pentium PROCESSOR

†For a complete copy of our Guarantees or Limited Warranties, please write Dell USA L.P., One Dell Way, Round Rock, TX 78664. ◊Business leasing arranged by Leasing Group, Inc. *For a limited time (with qualifying purchase), receive a coupon for a free MS Office 97 upgrade (either Professional or Small Business Edition) on CD only (no documentation included) after release from Microsoft. Call for details. **Norton/Visio Express Software Suite is available only on Dimension systems purchased with the combination of MS Office 95 and Microsoft Windows 95. Visio Express 4.0 is an OEM version and a subset of Visio 4.0. Software does not include documentation and may differ from retail version. ^On-site service provided by BancTec Service Corporation. On-site service may not be available in certain remote locations. *Prices and specifications valid in the U.S. only and subject to change without notice. The Intel Inside logo and Pentium are registered trademarks and MMX is a trademark of Intel Corporation. MS, Microsoft, Windows NT and Windows are registered trademarks of Microsoft Corporation. EtherLink is a registered trademark of 3Com Corporation. Trinitron is a registered trademark of Sony Corporation. ©1997 Dell Computer Corporation. All rights reserved.

IN THE INDUSTRY. NEED IT.

NEW DELL DIMENSION XPS M166s
166MHz PENTIUM PROCESSOR
WITH MMX™ TECHNOLOGY

- Mini Tower Model
- ★ **32MB SDRAM Memory**
- 512KB Pipeline Burst Cache
- 2.1GB Hard Drive (12ms)
- ★ ***NEW* 800HS Trinitron Monitor (13.7" v.i.s.)**
- ★ **Matrox Millennium 4MB WRAM Video Card**
- 12X EIDE CD-ROM Drive
- Integrated Sound Blaster 16 Sound
- Altec ACS-90 Speakers
- MS Office 95 Pro with Bookshelf
- ★ **MS Office 97, Professional or Small Business Edition Upgrade Coupon**
- FREE Norton/Visio Express Software Suite
- MS Windows 95/30 Days Free Support/MS Mouse
- 3 Year Limited Warranty with 1 Year On-site Service
- ★ *Upgrade to a 3.2GB Hard Drive (12ms), add $75.*

PICTURED SYSTEM

$2199

Business Lease: $81/Mo.
Order Code #500203

DELL DIMENSION P200v
200MHz PENTIUM PROCESSOR

- Mini Tower Model
- ★ **16MB SDRAM Memory**
- 256KB Pipeline Burst Cache
- ★ **3.2GB Hard Drive (12ms)**
- ★ ***NEW* 800HS Trinitron Monitor (13.7" v.i.s.)**
- 64-bit PCI 2MB DRAM Video
- ★ **12X EIDE CD-ROM Drive**
- MS Windows 95/30 Days Free Support/Dell Mouse
- 3 Year Limited Warranty with 1 Year On-site Service
- ★ *Upgrade to 32MB SDRAM, add $149.*
- ★ *Upgrade to a 17LS Monitor (15.7" v.i.s.), add $175.*
- ★ *Upgrade to a Sound Blaster 16 PnP Sound Card and Altec ACS-90 Speakers, add $89.*
- ★ *3Com C905 EtherLink® 10/100 PCI Card, add $139.*
- ★ *Iomega Zip 100MB IDE Internal Drive with 3-Pak of Cartridges, add $149.*

$1999

Business Lease: $74/Mo.
Order Code #500202

★★★★★ BEST
RELIABILITY AND SERVICE

– PC WORLD, December, 1996 –

Buy a Dell® computer, and according to the latest *PC World* subscriber survey, you'll have fewer problems with it than you will with virtually any other major brand. And in the rare event you do have a problem, these readers went on to add that you still won't have a problem. Because you'll experience one of the shortest times to reach a support person, one of the swiftest resolutions of your problem and one of the highest customer satisfaction rates in the industry. By the way, this year's survey saw service and support dwindling away, with most other major computer makers being downgraded. Which should tell you something loud and clear about the competition. Apparently, the only way they know how to cut costs is to cut corners.

DELL®

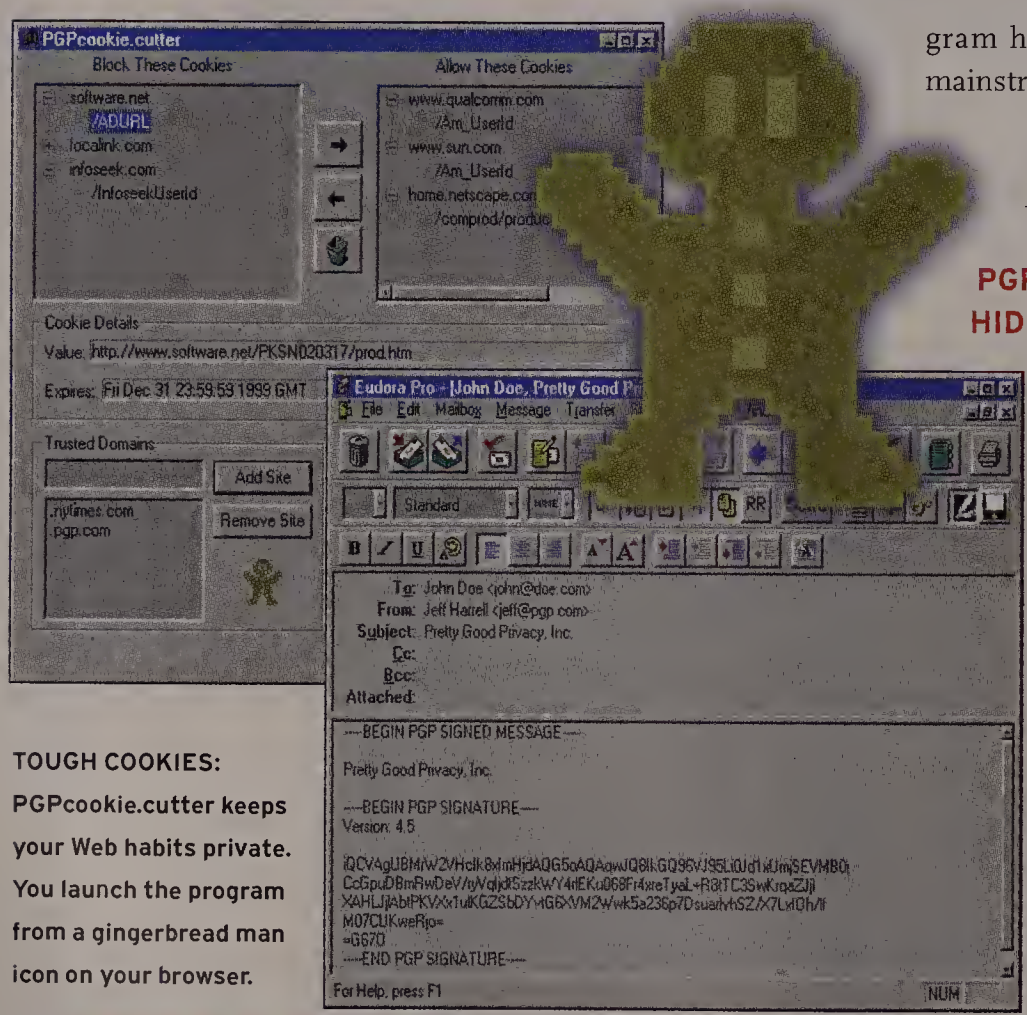
TO ORDER
800-873-1290
http://www.dell.com

Mon-Fri 7am-9pm CT • Sat 10am-6pm CT
Sun 12pm-5pm In Canada, call 800-232-6978

Keycode #03226

NEW PRODUCTS

PGP Products Protect You Against Internet Snoops



TOUGH COOKIES: PGPcookie.cutter keeps your Web habits private. You launch the program from a gingerbread man icon on your browser.

SECURITY

TWO OF THE most common Internet tasks—Web browsing and sending e-mail—induce the most paranoia, so Pretty Good Privacy, Inc. is tackling the security issues with two new products. **PGPcookie.cutter**, a $19.95 utility, prevents vendors or anyone with a Web server from viewing your browsing habits. **PGPmail 4.5**, list-priced at $149, lets you encrypt e-mail easily. The preproduction versions I used suggest that PGPcookie.cutter is a clear winner. PGPmail is pricey and so far supports only two popular e-mail clients—but if you need this kind of security, it can be priceless.

The company's founder, Phil Zimmerman, is already well known for his venerable and modestly named Pretty Good Privacy, a downloadable, free tool that encrypts e-mail using a 128-bit algorithm. But due to its intimidating command-line interface, the program hasn't made it to the mainstream. Fortunately, the two latest products aren't tricky for users to learn or work with.

PGPCOOKIE.CUTTER HIDES WEB TRACKS

IF YOU HAVE a Web browser, you've probably heard of the privacy infringement risk associated with *cookies*—text files that Web servers write to your PC's hard disk and that subsequently can be viewed by other Web servers. Cookie files maintain a record of your identity, some demographic information, and your browsing habits, including the names of specific sites you've visited. PGPcookie.cutter, for Windows 95, Windows NT, and the Mac OS, is the first "cookie-blocker" tool on the market.

Judging from the preproduction version I examined, PGPcookie.cutter is effective and easy to use. The program, which can work with either Microsoft Internet Explorer or Netscape Navigator, adds a tiny icon that looks like a gingerbread man to the title bar of your Web browser. Click this icon, and a simple drop-down menu displays everything you need—four options in all. Once you have configured the program to prevent Web servers from peeking at your cookie file, you won't have to do anything else.

A common misunderstanding arises from the notion that preventing the cookie file information from being written to your PC's hard disk actually prevents servers from peeking at the information. In fact, servers can still look at the information, which is stored in RAM, while your browser is open.

PGPcookie.cutter doesn't prevent information from being written to the cookie file on your computer. Instead, the program lets you control who

PGPcookie.cutter

PRO: Keeps your browsing habits private.

CON: None, at first glance.

VALUE: Excellent, affordable, and easy to use.

PGPmail 4.5

PRO: Adds a tight layer of security to your e-mail.

CON: Pricey, currently works only with Netscape Mail and Eudora Pro.

VALUE: Worthwhile for sending confidential messages.

Pretty Good Privacy, Inc.
415/572-0430
http://www.pgp.com
List price: PGPcookie.cutter $19.95, PGPmail 4.5 $149

READER SERVICE NO. 736

can read the cookie information from your PC's RAM or hard drive: You simply type in the URLs of particular sites you'd like to grant such access to—for example, personalized Web pages and service sites that deliver custom information based on your tastes and past viewing habits.

ENCRYPTING E-MAIL

PGPMAIL 4.5, a Windows 95 version of the old DOS-based PGP program, offers several powerful options for protecting your sensitive e-mail from prying eyes. To let you know whether anyone has read or tampered with your messages, PGPmail's signing feature verifies the authenticity of the original message by comparing the checksum, a file that should be identical in both the sent and received messages. PGPmail's RSA encryption uses up to a 1024-bit algorithm to encode files.

Unfortunately, the program currently works only with Netscape Mail (the e-mail software that comes with the Netscape Navigator browser) and with Qualcomm's Eudora Pro. Support for other major e-mail programs should be available later this year.

In order to read the messages you send, your recipient needs a free, downloadable PGP program.

PGPmail adds five new buttons to your e-mail software's toolbar. During installation, you create two *keys* (unique strings of random characters)—a private key for yourself and a public key for your e-mail correspondents. These keys establish a unique and virtually indecipherable encryption formula.

When you send someone your public key, PGPmail adds the key to the recipient's Keyring—a database of public keys. From then on, sending and receiving encrypted messages is an almost automatic process, requiring one button click at each end.

Our primary reservation about PGPmail 4.5 relates to its high list price ($149). The company says that a free trial version may be available by the time you read this.

—*Yael Li-Ron*

EDITED BY
Yardena Arar and Laurianne McLaughlin

Philips's Velo 1: A Better Handheld Computer

HANDHELD PC

IF NOTHING ELSE, Philips's **Velo 1** demonstrates that Windows CE, Microsoft's compact version of Windows 95 for handheld computers, leaves much to be desired. Based on my experience with a preproduction unit, the Velo 1 is the best of the breed so far. But such CE devices aren't for all: They're too large to be pocket-size, keyboards are tiny, and you have to use a stylus (instead of a mouse) to point and click.

THE SWIFT VELO 1 has Windows CE plus lots of bells and whistles.

Weighing only 14.2 ounces without batteries, the sleek charcoal-gray Velo 1 can generate documents and spreadsheets, handle faxes, surf the Web, take voice memos, and interface seamlessly with your desktop PC via a serial connection. Like other Windows CE devices, the Velo 1 has a small QWERTY keyboard and a 480-by-240 monochrome touch-screen LCD. Its backlighting capability is useful given the unit's rather dim display. The stylus—calibrated to your touch during start-up—conveniently slides into a slot at the keyboard's upper right when not in use.

The $599 basic model ships with a docking station (an option that some of its competitors offer, too); a built-in 19.2-kbps fax-modem that comes with an RJ-11 jack; and a built-in voice memo recorder (not complete in my preproduction unit). In addition to the special skinny versions of Microsoft Word and Excel that are included in Windows CE, Pocket Quicken, fax software, and interfaces for Lotus cc:Mail and Microsoft Mail are also available. For another $100, you can upgrade from 2MB of RAM to 4MB. The Velo 1 comes with an AC adapter and also runs on two AA batteries that should last 12 to 15 hours.

The Velo 1 is a lot bulkier than a bare-bones personal organizer, and typing on it isn't much fun. But if a Windows CE device seems like the answer to your mobile computing problems, the Velo 1's features and price make this handheld PC an attractive buy.

—*Yardena Arar* ▶

Velo 1

PRO: Lightweight and full featured, nice price.

CON: Small keyboard.

VALUE: Excellent choice if you like Windows CE.

Philips Electronics
888/367-8356
http://www.velo1.com
Street price: $599

READER SERVICE NO. 737

CONTENTS

78 PGPcookie.cutter, PGPmail 4.5 Web security software
79 Velo 1 handheld computer
80 MaxiSound 64 sound cards
80 Big 5 SQ-TC510N CD-ROM drive
82 VoiceType Simply Speaking dictation program
82 Cordless Radio MouseMan
82 Netopia Virtual Office
86 Magic Cap e-mail package
86 Microsoft Network
88 Active-Office for Windows 95
88 Partition Magic 3.0 hard disk utility
92 Fujitsu PrintPartner 10V, 14AV; Xerox DocuPrint 4512, 4512N
92 NEC SuperScript 660plus
94 Cardinal Voyager fax-modem
94 Olympus D-300L digital camera
99 Micrografx FlowCharter 7
99 Policies Now 5.0 human resources software
101 SamePage 2.0 groupware
103 GrabIt, Snappy video capture products

INTERNET

FOR MORE PRODUCT news and the latest announcements, check out the PC World Daily News Service at **http://www.pcworld.com/news.html.**

MaxiSound 64 Puts a Sound Studio in Your PC

MULTIMEDIA

THESE DAYS, you need a good sound card to run everything from multimedia presentations to Internet software. Ubi Soft Entertainment provides a pair of intriguing options with its **MaxiSound Home Studio 64** and **MaxiSound Home Theater 64** sound cards. Both boards provide rich, 64-note wavetable MIDI voice polyphony for playing back orchestral MIDI audio scores, plus full-duplex audio for communication software and interactive gaming. In addition, both cards support quadraphonic sound, with four-speaker output.

With its unique real-time effects and multitrack support, the $299 Home Studio 64 takes aim at audiophiles. You can apply echo, reverb, filter, and pitch transformations to incoming audio in real time (to make your voice echo during a speech, for example). You can even alter the sound of your favorite games and save the customized settings for replays. The board supports four tracks of audio (expandable to eight) and includes Quartz Audio Master S.E. software for mixing complex compositions. The board also bundles the Cakewalk Express MIDI sequencer and an Internet phone application. Home Theater 64 costs about $50 less but lacks the real-time effects handling and Quartz Audio Master S.E. software.

The real-time effects capability of Home Studio 64 certainly grabbed my attention, and I liked the graphical controls for setting the equalizer and customizing 3-D audio positions. The quality of wavetable MIDI playback was very good. But the bundled software would not record above 8-bit fidelity, and I struggled with interface quirks, such as contending volume controls on separate applications. Even worse, both my Home Studio 64 samples produced an audible whine and higher-than-average noise levels in *PC World* audio fidelity benchmark tests.

If you don't need cutting-edge fidelity, the unique features of these boards make either of them a good buy. Aspiring professionals, however, will find the boards' shortcomings troublesome.

—*Michael Desmond*

MaxiSound Home Studio 64, MaxiSound Home Theater 64

PRO: Home Studio offers unique real-time effects.

CON: A few usability quirks.

VALUE: Great for presenters and audiophiles.

Ubi Soft Entertainment

800/824-7638, 415/547-4000

http://www.ubisoft.com

Street price: Home Studio 64 $299, Home Theater 64 $249

READER SERVICE NO. 738

Panasonic's Fast, Cheap CD-ROM Changer

MULTIMEDIA

ARE YOU AN avid game player, a user of multidisc multimedia reference titles, or (fess up) a music lover who spends way too much time swapping audio CDs in and out of the drive? Then you've probably had your eye on a CD-ROM changer. Until now, though, such devices have been clunky and slow—typically providing only 4X speed. Panasonic's new 10X **Big 5 SQ-TC510N** answers a CD-ROM juggler's prayer—for less than $250.

FIVE DISCS, 10X: For a street price of less than $250, Panasonic's speedy new CD-ROM changer ends the CD shuffle.

I tested a shipping unit. Fitting snugly into a half-height bay (horizontal mounting only), this changer is no more difficult to install than the conventional CD-ROM drive it will most likely replace—but you must know your way around the inside of a desktop PC. This model uses an IDE connection; a SCSI version should be out by press time. Don't count on the manual for much help, though: It's the weakest part of the package.

But after installation, operating the Big 5 is simple. To load discs, you press a numbered button on the front of the device; the appropriate tray slides out. Slip in a disc and push the door gently to slide it shut—no caddies or magazines to mess with. (You can't load or eject a disc when earphones are plugged in, though).

You can manage CDs using the Panasonic Disc Director program for Windows 3.*x* or Win 95. Select a disc by double-clicking an on-screen button and choosing the appropriate command. Or click the SmartCD icon on Windows 95's Taskbar to generate a pop-up menu from which you can select and play discs.

Another nifty feature is that the audio CD player lets you program tracks from multiple discs just as you would on your home stereo changer. For heavy multimedia users who are tired of the CD-ROM shuffle, there's nothing remotely comparable at the price.

—*Yardena Arar* ▶

Big 5 SQ-TC510N

PRO: Fast, easy to use, reasonable price.

CON: Skimpy manual, installation can be tricky.

VALUE: Excellent feature set and performance.

Panasonic

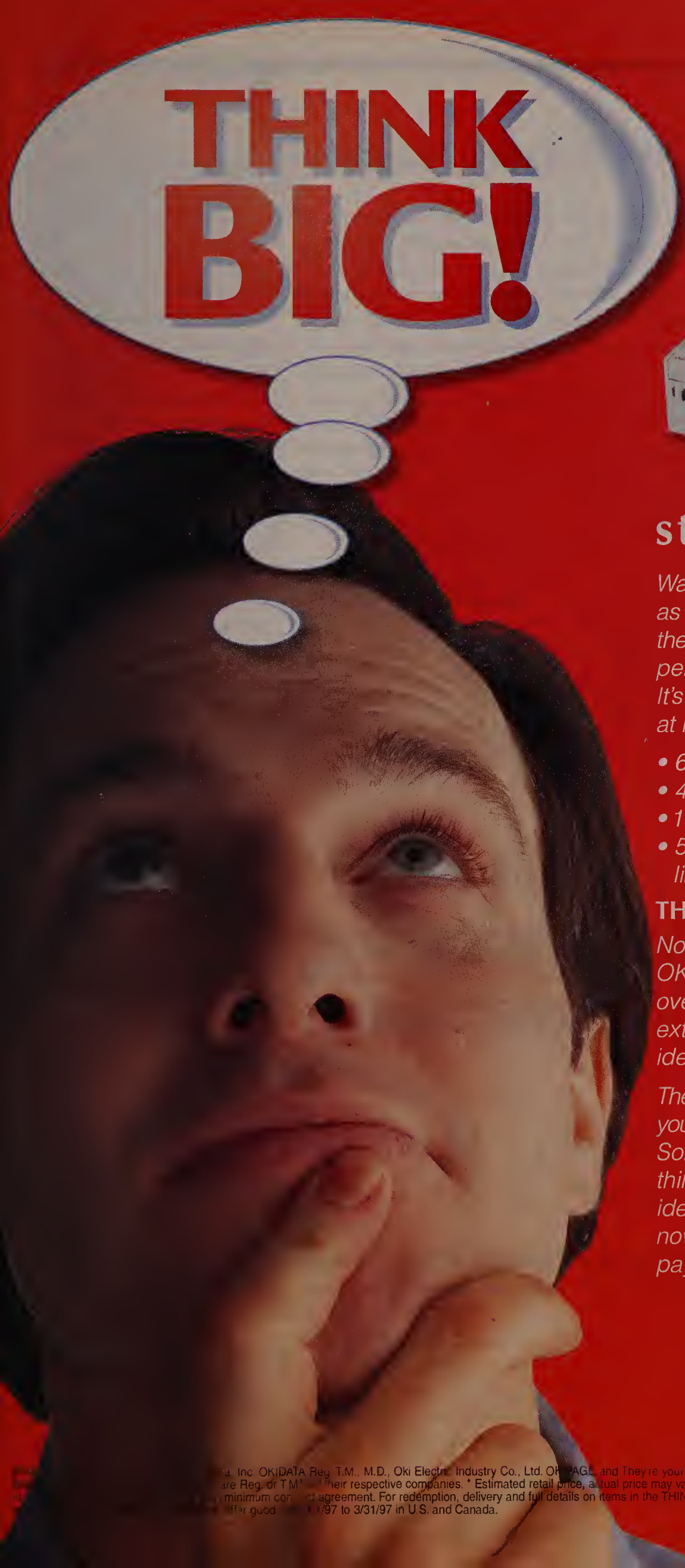
800/742-8086

http://www.panasonic.com

Street price: $249

READER SERVICE NO. 739

THINK BIG!



start small.

Want your ideas to look as big as they really are? Start with the compact OKIPAGE 4w™ personal laser class printer. It's professional quality output at its most affordable price.

- *600 dpi-class output*
- *4 pages per minute*
- *1 year overnight exchange***
- *5 year LED printhead limited warranty*

THE THINK BIG! BUNDLE

Now until March 31,1997, the OKIPAGE 4w comes with over $100 in thoughtful extras to help you get your ideas off the ground.

Free† Sprint® 30 minute phone card

Free† Claris® software

ACN/Pagenet® with Motorola® pager

Free† issue and offer from Small Business Computing™

And other productivity enhancers

The OKIPAGE 4w. Perfect for your home or small office. Sometimes the biggest thing you can do for your ideas is actually the smallest. Start now. Call 1-800-OKI-TEAM x683, or pay us a visit at www.okidata.com

OKIDATA®

They're your ideas.
We just help.™

a, Inc. OKIDATA Reg. T.M., M.D., Oki Electric Industry Co., Ltd. OKIPAGE and They're your ideas. We just help T.M. Oki America, Inc. Claris, Sprint, Motorola, Small are Reg. or T.M. of their respective companies. * Estimated retail price, actual price may vary. ** Overnight exchange in U.S. and Canada only. † Free with purchase minimum contract agreement. For redemption, delivery and full details on items in the THINK BIG! BUNDLE, see your Okidata dealer or www.okidata.com. Proof of offer good 1/97 to 3/31/97 in U.S. and Canada.

Look, No Hands: IBM's $99 Dictation Program

SPEECH RECOGNITION

ARE YOU ON speaking terms with your computer? IBM's **VoiceType Simply Speaking** software lets you dictate to your PC. List-priced at $99, it's one of the first low-cost products in a category that formerly required an investment of $300 to $500. I tested a shipping copy of this Windows 95 application, which comes with an easy-to-use microphone headset. Unfortunately, you'll need at least a Pentium-100 machine with 16MB of RAM to use the program—no small drawback for many people.

IBM says you can start using the program right away, with no training exercises. To do this, however, you have to choose the "discrete" speech option—meaning that you pause briefly after you say each word, which is not convenient even for quick messages or memos. So we recommend that you complete the "enrollment" option: You spend about half an hour reading 50 to 283 sentences aloud to familiarize the system with your speech patterns.

In my own case, VoiceType Simply Speaking proved to be stenographically challenged. But I gave it a particularly hard test: It didn't know what to make of my Irish accent on words such as *and, hand, than,* and *that*. If you have a strong regional accent, your experience may be similar. Completing the first 60 sentences took me just over an hour—and when I started using the program, it translated only about half of my spoken words.

VoiceType Simply Speaking will appeal especially to people with injuries that limit their typing ability. Nonetheless, the program's high-end system requirement means that it's unlikely to bring voice recognition to the masses.

—Aoife McEvoy

VoiceType Simply Speaking

PRO: Attractive price.

CON: Needs Pentium-100 or better.

VALUE: Affordable, but requires training time.

IBM Speech Systems

800/825-5263

http://www.voicetype.ibm.com

List price: $99

QUICK TAKES

Mighty MouseMan

Nice shape, no cord, smart software, and fair price: Logitech's Cordless Radio MouseMan has all the makings of a mighty input device. This radio-controlled mouse communicates with your PC through a receiver that connects to your system's PS/2 or serial port. The MouseMan works within a three-dimensional range of 25 to 30 feet, and—unlike infrared devices—it does not require a clear line of sight to the receiver. Its innovative, tilted profile is comfortable for your wrist. For a reasonable street price of $79.95, this cordless mouse reduces desktop cable tangle, wrist discomfort, and mousing mileage. It could also come in handy for small group presentations. Logitech Inc., 800/231-7717; http://www.logitech.com.

READER SERVICE NO. 740

Centralize Communications With Netopia

COMMUNICATIONS

FARALLON'S **Netopia Virtual Office** combines a handful of popular communications technologies into an unusual and worthwhile product. Virtual Office helps you create a personal Web site that becomes your communications center, complete with collaboration, remote access, and messaging features. I examined a beta version; the finished product is expected to sell for $70 (or $49.95 as a download).

Setup is a snap. To create a Web site with Virtual Office, you complete a series of templates—a process that took me about 10 minutes to complete. The site consists of multiple parts. The first page, or Office Door, lets you leave a "note" telling site visitors whether you're in or out of the office. If you're in, they can send a message, or move to another page and click an icon that sends a knocking sound to your PC, inviting you to chat.

KNOCK, KNOCK: Virtual Office tells visitors whether you're available.

A Conference page offers online chat, Internet phone capabilities for making calls, and collaboration features such as application sharing.

Visitors can leave or retrieve files while you're away from your PC. You can dial in to your site from the road and retrieve files or run applications from a browser—all for the price of a local call.

A demonstration of the product is available at http://www.demo.netopia.com.

—Randy Ross ▶

Netopia Virtual Office

PRO: Handles communications chores uniquely and effectively.

CON: Beginners could be overwhelmed by the program's many features.

VALUE: An affordable time-saver.

Farallon Communications, Inc.

510/814-5000

http://www.farallon.com

Street price: $70, download $49.95

READER SERVICE NO. 741

As of today, maps are re-defined. With new Street Atlas USA® 4.0 CD-ROM, you can easily find

individual addresses and ZIP Code boundaries, add notes and lines, and measure distances and areas on incredibly complete, detailed maps. With an Internet link, Street Atlas USA 4.0 also displays current information about weather, events, and road construction right on your map. To find your current location anywhere you go, just add your

©1996 Delorme

own laptop and Tripmate.™ Using Global Positioning System (GPS) satellite technology, Tripmate will track your every turn on detailed maps. And to explore every twist and turn of America's rugged terrain in 3-D, discover new 3-D Explorer USA.™ So now you can do more than print beautiful maps, perform desktop marketing, and receive clear directions. You can turn getting "lost" into a lost art.

DELORME®

1-800-452-5931 / www.delorme.com
Lat. 43°50.8325'N / Long. 70°06.7525'W

[DICTIONARY OF THE FUTURE, PAGE 531]

lost (lôst) ***adj.*** [archaic] **1.** unable to locate one's position, as in, "Help. I am lost." **2.** having no sense of direction at all **n.b.** became obsolete in 1996 with the introduction of Street Atlas USA 4.0 and Tripmate.

Circle 37 on reader service card

Engineered

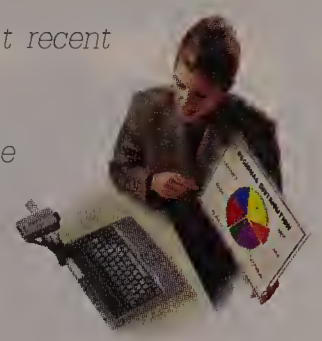
beyond

your wildest

dreams.

1997 Toshiba America Information Systems, Inc. All specifications and availability are subject to change. All products indicated by trademark symbols are trademarked and/or registered by their respective companies. Intel Inside and Pentium Processor Logos are registered trademarks and MMX is a trademark of Intel Corporation.

The new Toshiba portables. Proof that dreams do come true.



Nobody knows more about recent technological advances in the computer industry than you do.

No article goes unread. No research or review untouched.

You are the tech guru in search of the ultimate computer.

Which is why, as the world's leader in portable technology, you can always rely on us to meet your needs. And we have, time and time again. By being the first to offer you portables loaded with the latest, most relevant technology. Like video conferencing and Intel MMX™ technology. Introducing the Toshiba Tecra™ 740CDT. You'll find, it not only meets your expectations, it exceeds them. No other portable comes close. And though flying portables aren't yet a reality, when they are, we'll be the first to bring them to you. After all, our commitment to delivering you the latest technology is what we're about. For more information about our amazing new portables, call 1-800-457-7777, or visit our website at http://computers.toshiba.com.

MMX™ intel inside pentium® PROCESSOR

Designed for Microsoft® Windows® 95

MMX™ TECHNOLOGY
Maximize your multimedia applications by 10-20% using the 166MHz Pentium® processor with MMX technology.

VIDEO CONFERENCING
Experience face-to-face communication in and out of the office. With superior video quality and ease of use.

13.3" COLOR DISPLAY
Equipped with brilliant TFT color. Imagine the largest display available in a portable.

10X CD-ROM*
Access your video, sound and data with the maximum speed available.

- 2.1 billion byte (=2.02GB) removable HDD
- 16MB high-speed EDO DRAM (expandable to 144MB)
- PCI internal system bus architecture
- HiQVideo™ graphics controller with 64-bit BitBLT graphics acceleration and 2MB EDO video memory
- Lithium Ion Battery
- Built-in, cellular-ready 28.8 Kbps voice/data/fax modem with V.80 support for video conferencing, full duplex speaker-phone and telephone answering machine
- Noteworthy™ Business Video Phone with Intel ProShare® Technology software
- 16-bit MIDI, WAV and Sound Blaster® Pro compatible with internal stereo speakers and microphone
- Supports two Type II or one Type III 16-bit PC Cards, Zoomed Video (ZV) Cards or 32-bit CardBus Cards
- Infrared port (IrDA 1.1 compliant)
- SelectBay™ for modular CD-ROM and FDD support
- Optional Desk Station V Plus docking station or NoteDock™ II Enhanced Port Replicator
- Windows® 95 or Windows® for Workgroups and MS-DOS
- 3-year limited warranty
- Toll-free technical support - 7 days a week, 24 hours a day
- Tecra 730XCDT also available: 150MHz Pentium processor, optional video conferencing and 12.1" color display

*10X average speed

In Touch with Tomorrow
TOSHIBA

Circle 228 on reader service card

Magic Cap Puts a Friendly Face on Your E-Mail

E-MAIL

THOUGH IT WAS originally a graphical operating system, **Magic Cap** has reinvented itself as a communications and organization tool built around Windows message functions and America Online.

Magic Cap's intuitive interface is a virtual office, complete with a writing desk, filing cabinet, and storeroom. You can use America Online, Microsoft Exchange, or Microsoft Internet Explorer with this Windows 95 product. (Magic Cap includes AOL and IE.) After configuring the software for your Internet connection, you're ready to send and receive e-mail and faxes.

With Magic Cap, you mimic the steps involved in composing a real letter: Pull out an envelope, select a recipient from your address book, write your message, and then put it on the desk or in the out-box. You can also add stamps like Urgent or Reply Needed.

The program makes it easy for you to set customized rules for incoming and outgoing messages by using drop-down dialog boxes. You can sort and store messages from individuals or groups, or by priority. It won't replace a full-blown contact manager, but Magic Cap also includes a tidy organizer that tracks meetings and tasks, and logs phone calls.

—*Peter Scisco*

COMMUNICATIONS WIZARD: Magic Cap lets you assign rules and and sort your e-mail easily. It also handles faxing and some PIM chores.

Magic Cap for Windows 95

PRO: Easy-to-use, rule-based e-mail and faxing.

CON: Doesn't replace a full-featured contact manager.

VALUE: Top-notch e-mail package lets you concentrate on the message, not the medium.

General Magic

888/239-4824

http://www.genmagic.com/mcw/

Street price: $49; free 30-day trial available from Web site

READER SERVICE NO. 742

Microsoft Network, Take Two

ONLINE SERVICE

THE SECOND-LARGEST commercial online service, **Microsoft Network**, is going through a major face-lift and attitude adjustment. The newest version features innovative multimedia content, which makes MSN worth checking out, even though it still has less content overall than America Online. Its pricing is comparable to AOL's, at $19.95 per month for MSN content and unlimited Internet access.

Current Microsoft Network members—1.6 million people, according to Microsoft—will have received CD-ROMs with new client software by the time you read this. Like Prodigy, MSN is a Web-based service. Why should you need new software? Because Microsoft wants you to use *its* Web browser. Though you can look at the new version of MSN with any browser, a specially enhanced version of Internet Explorer 3 has been created for Microsoft Network users, featuring a slick new design and nice navigational tools. In addition, the multimedia-rich MSN stores some files on your PC, which means that less information has to travel through the wires.

The latest MSN boasts tons of new content, available in an Essentials area (a reincarnation of the old versions' special-interest areas) and in six interactive multimedia "channels" that focus on different topics and audiences. Channel 3, for example, is an area for thought-provoking documentaries and news analysis, while Channel 6 is dedicated to teenagers and preadolescents. The original material—about 35 programs so far—comes from third-party content providers. You can also access some of the content (with the exception of the special programs) via the Web without becoming an MSN member, for $6.95 per month.

Microsoft Network retains its useful Expedia travel service, Car Point car shopping service, and an online version of Microsoft Encarta.

On the downside, the new MSN continues to rely on the sluggish Microsoft Exchange system for sending and receiving e-mail. Earlier announcements from Redmond had promised a transition to the POP3 Internet e-mail standard, which would have let members use lighter e-mail clients such as Eudora or even Microsoft's own Internet Mail. A company spokesperson says the conversion to POP3 won't take place until sometime later this year. In addition, Microsoft no longer supports international MSN users.

The company is offering a free 30-day unlimited trial period, which makes it easy to judge MSN for yourself.

—*Yael Li-Ron* ▶

Microsoft Network

PRO: Tons of new content, good looks.

CON: Slow e-mail handling, less content overall than AOL.

VALUE: Worth signing up for free trial period.

Microsoft

800/373-3676

http://www.msn.com

Pricing: $19.95 per month

READER SERVICE NO. 743

YOU DON'T HAVE TO BE ON A PLANE TO FLY.

DELL® LATITUDE® LM P133ST
133MHz PENTIUM® PROCESSOR

- **12.1" SVGA Active Matrix Color Display**
- **16MB RAM/1.3GB Hard Drive**
- 256KB L2 Cache
- Options Bay accepts 6X CD-ROM, 3.5" Floppy Drive (both included) or Optional 2nd Li-Ion Battery
- **PCI Bus with 128-bit Graphics Accelerator**
- Integrated 16-bit Stereo Sound
- Smart Lithium Ion Battery
- IrDA 1.0 Standard Compliant
- Touchpad
- Under 7 Pounds*
- Extendable 1 Year Warranty†

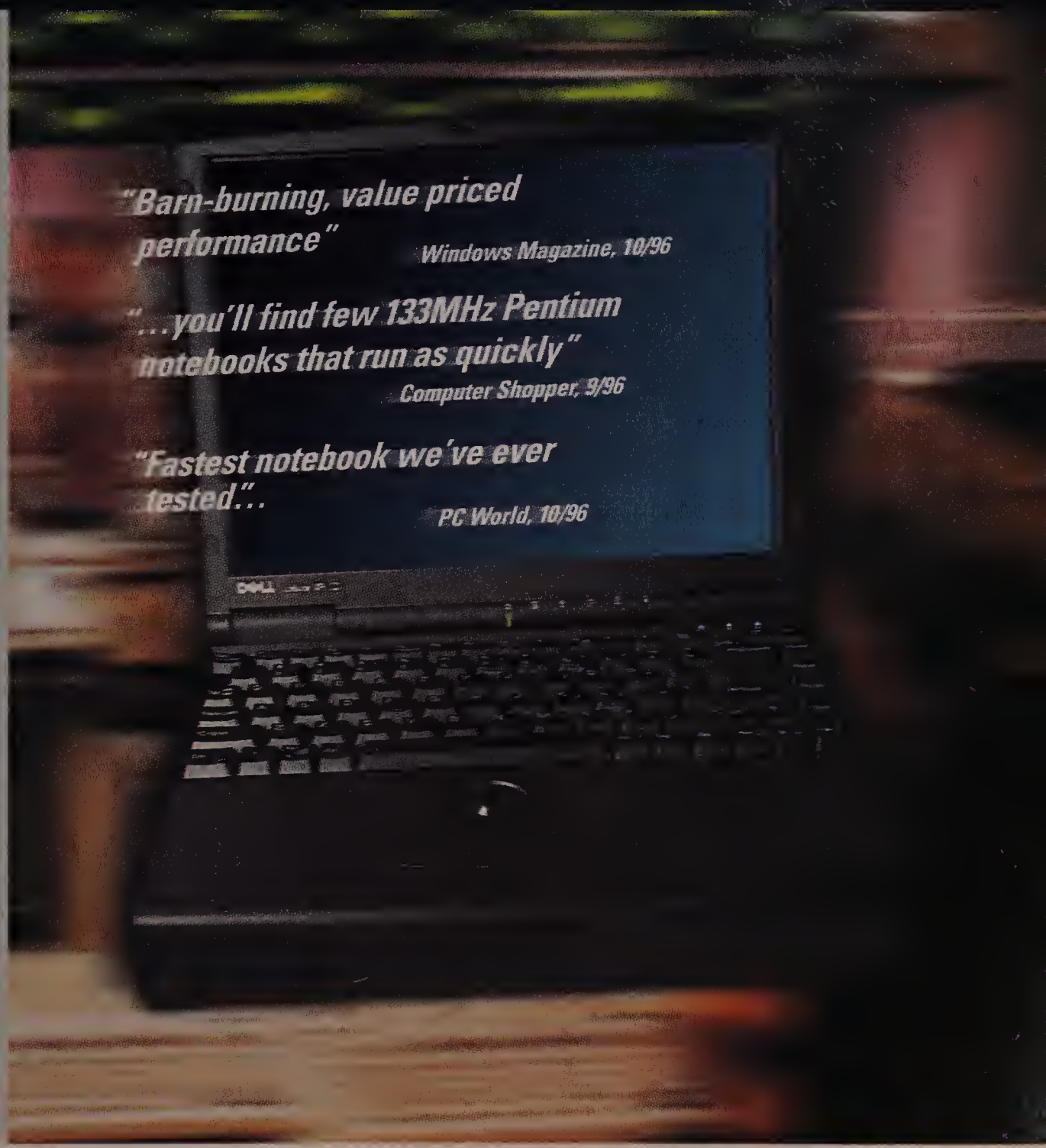
★ *33.6 XJACK®/Cabled Modem, add $239.*

★ *Upgrade to a 2.1GB Hard Drive, add $300.*

PICTURED SYSTEM

$2999

Business Lease◊: $111/Mo.
Order Code #800051



Yes, the Dell Latitude LM P133ST is fast. Blisteringly so, thanks to an optimized combination of PCI bus, 133MHz processor and 128-bit Neomagic PCI video controller. But speed isn't everything, so we've endowed it with a stunning 12.1" active matrix screen. And battery life that just won't quit thanks to Lithium Ion technology and Dell's Power Management software. By the way, there's one more feature guaranteed to make this notebook go fast. The price. So hurry up and call us to order one today.

intel inside pentium PROCESSOR

DELL®

TO ORDER

800-847-4088

http://www.dell.com/buydell

Mon-Fri 7am-9pm CT • Sat 10am-6pm CT
Sun 12pm-5pm In Canada*, call 800-232-6978

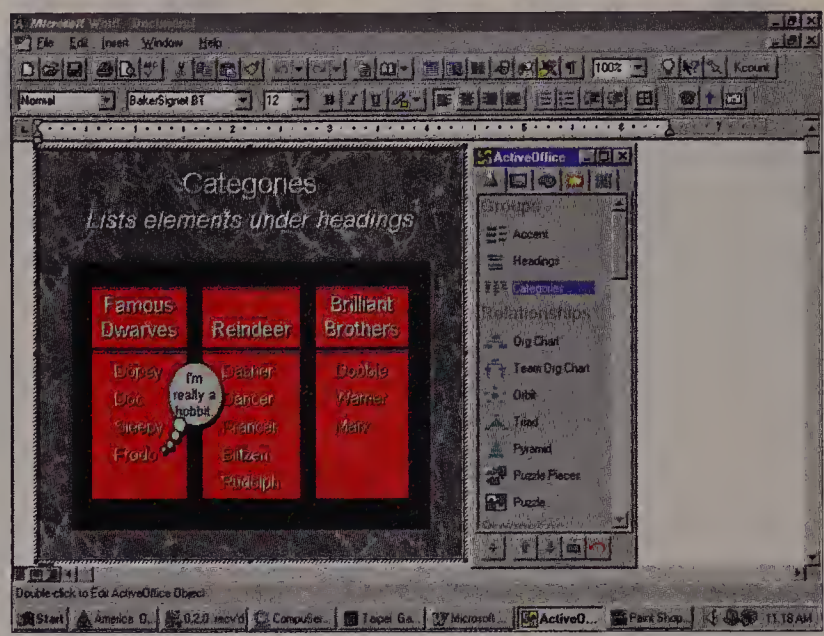
Keycode #03227

Pricing is not discountable. †For a complete copy of our Guarantees or Limited Warranties, please write Dell USA L.P., One Dell Way, Round Rock, TX 78664. ◊Business leasing arranged by Leasing Group, Inc. *System weight with floppy drive or CD-ROM in options bay ★Prices and specifications valid in the U.S. only and subject to change without notice. The Intel Inside logo and Pentium are registered trademarks of Intel Corporation. XJACK is a registered trademark of US Robotics Mobile Communications Corporation. ©1997 Dell Computer Corporation. All rights reserved.

Active-Office Spruces Up Documents

GRAPHICS

THESE DAYS, a report or spreadsheet must be more than clear and effective. If you're presenting your ideas to other people, looks matter. Software Publishing Corp.'s new **Active-Office for Windows 95** helps you easily create slick visuals from scratch, or add graphics and special effects to documents done in Microsoft Office 97 and other Windows 95 applications that support OLE 2.0. I was very impressed with the preproduction version of Active-Office supplied for this review.



PRESENTATION PIZZAZZ: Active-Office lets you add graphics and special effects to reports and other documents in minutes.

The product works inside your application: If you use Office 97, for example, an Active-Office button is automatically added to the Office toolbar. (When you're using other applications, the Active-Office icon appears in the Windows 95 Taskbar.) Click the button, and a floating "gallery" of presentation styles pops up, including Groups, Charts, Tables, Scheduling, and others. You can use these to spruce up your existing text, charts, or graphics, or to create new effects. To add further interest to your visuals, you can change color palettes and even introduce different textures and backgrounds—all through a very quick process of pointing and clicking.

Customizing styles and objects may require a bit of trial-and-error experimentation, so you'll probably want to make copies of your files before modifying them. Case in point: While Active-Office does a great job of converting text into an OLE object, the only way you can convert an Active-Office object back into text is through the Undo command in your Office application. This means that to make further changes to your document you may have to manually recreate text that had been converted into an Active-Office graphic.

Active-Office isn't nearly as intuitive as I would have liked, but it produces impressive results quickly and easily.

—Gordon Meyer

Active-Office for Windows 95

PRO: Creates visuals and graphic effects in minutes.

CON: Not easy to undo some effects.

VALUE: An affordable, smart choice.

Software Publishing Corp.
800/336-8360
http://www.spco.com
Street price: $50

READER SERVICE NO. 744

Partition Magic: Finder of the Lost Megabytes

UTILITY

ARE YOU REALLY getting all the storage you paid for? With a 1GB to 2GB hard drive, you may typically be wasting 10 to 20 percent of its space, due to a design shortcoming in DOS that dramatically increases the size of clusters in which files are stored as your hard drive partitions get bigger. (Yes, this problem affects most Windows 95 users as well.)

PowerQuest's **Partition Magic 3.0** is a good solution to this problem, judging from the shipping copy I looked at.

This powerful utility—which works under DOS, Windows 3.*x*, Win 95, Win NT, and OS/2—lets you add, delete, and resize your disk partitions, as well as change their cluster size (something you can't do in DOS without first erasing the disk completely and then starting over from scratch).

Once you've learned Partition Magic, it's very easy to use. But you'll need to read the manual: The program can be complex to master, and the package comes without any tutorial to walk you through the procedures.

The program's graphical display uses buttons to show the relative sizes of existing partitions on your hard drive. You simply click a partition's button, then choose Resize. The window that follows lets you change the partition size either by sliding a bar or typing in the exact size you want.

I tested Partition Magic 3.0 on a Windows 95 system with a single-partition 1.2GB hard drive. By breaking the disk down into two partitions of 850MB and 350MB—and reducing cluster size—I recovered more than 200MB of usable space. The bigger your hard drive, the more you'll benefit from this program.

—Gordon Meyer ▶

Partition Magic 3.0

PRO: Does a good job of recovering hard drive space.

CON: Not intuitive, lacks on-screen tutorial.

VALUE: Worth the price and time spent reading the manual.

PowerQuest
800/379-2566
http://www.powerquest.com
List price: $69

READER SERVICE NO. 745

KDS

What are you looking at?℠

KDS Visual Sensations™ are better monitors no matter how you look at them.

Better because of built-in **reliability** based on ISO 9001 certified assembly.

Better because they have all the **advanced** features you want.

Better because they give you an outstanding **value** without compromising quality.

And better because of KARES -- the industry's only lifetime **express** replacement program.

Contact us today for more details.

Because no matter what you're looking at, KDS monitors are preferred by people who use their heads.

Sales: 800.237.9988
Specs-By-Fax: 800.511.2589
http://www.kdsusa.com

KDS ADVANCED REPLACEMENT KARES EXPRESS SERVICE

© 1996 KOREA DATA SYSTEMS, LTD. All rights reserved. Visual Sensations is a trademark of KOREA DATA SYSTEMS CO., LTD.

Circle 170 on reader service card

"They thought that my new
was just a big surge suppressor

Guaranteed Protection against all power problems, on all power paths, for PC's and peripherals.

RECOMMENDED TEST·CENTER 1·9·9·6 Computer Reseller News SPRING COMDEX

"Back-UPS Office is a shoo-in for the small-office/home-office computing market and for general desktop workstations."
– Computer Reseller News

LAN TIMES READERS' CHOICE 1996

APC products have won more awards for reliability than all other UPS vendors combined.

User-replaceable Batteries
Cells can be easily swapped out, saving time and expense: no need to return to the factory for service. Batteries last 3-6 years under normal usage.

Battery Replacement Warning Prevents Downtime
An LED signals when the Back-UPS Office's internal self-test finds the battery near the end of its life. Users have 6-8 weeks warning.

Convenient BlackSafe™ Outlet Spacing
Back-UPS Office's outlets are spaced to accommodate all si plugs, including large transfor blocks. No need to sacrifice th use of any outlets to accommodate large block plu

Space-saving design
Back-UPS Office's compact design installs easily on desktop, floor, or mounts to wall. Its ninety-degree plug fits flush against the wall.

Integrates the Security of a Surge Suppressor with the Power of a UPS
Back-UPS Office provides enough outlets to protect your entire system. Six outlets guard your hardware with full time surge protection. Three of the six provide instantaneous battery backup to keep your system from crashing in the event of a brownout or blackout.

Site-Wiring Fault Indicator
Without a proper ground, most surge protection is useless. Back-UPS Office al you to wiring problems such as missing ground and reversed polarity, two comm wiring mistakes which otherwise would require an electrician's visit to diagnose.

© Copyright 1997, APC. Trademarks are the property of their owners. ABO001

FREE 60-page handbook

What are the myths and musts of PC protection? What are the 10 most common power protection mistakes? The top tips for adding reliability to your PC? Get your FREE copy and find out!

☐ **YES!** I'm interested in the new Back-UPS Office. Please send me more information.

☐ **NO,** I'm not interested in the Back-UPS Office at this time, but I would like a FREE Solutions '97 catalog

New Back-UPS® Office from APC

Name: .....Title:.....

Company:.....

Address:.....

.....

City:.....State:..... Zip:.....

Phone:.....Fax:.....

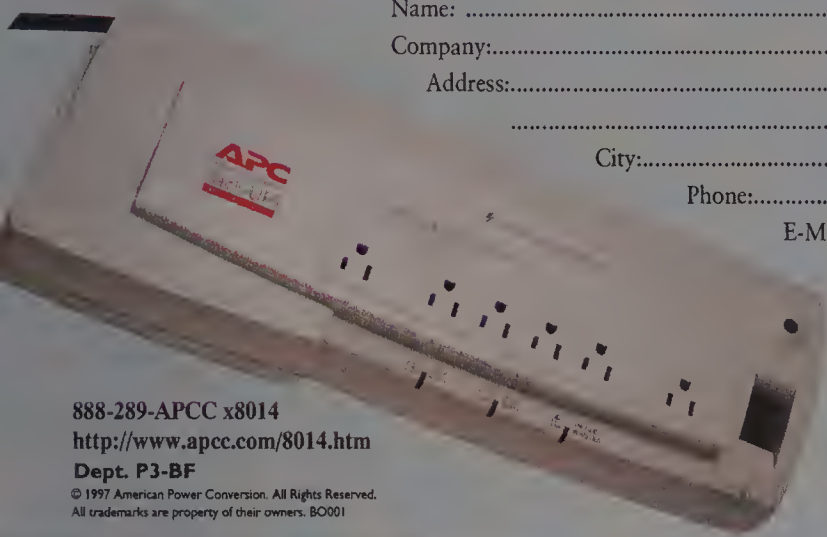
E-Mail:.....

Brands of UPS used:.....

servers/PCs to be protected:.....

☐ End User ☐ Reseller

Is this your first contact with APC? ☐ Yes ☐ No



888-289-APCC x8014
http://www.apcc.com/8014.htm
Dept. P3-BF

© 1997 American Power Conversion. All Rights Reserved.
All trademarks are property of their owners. BO001

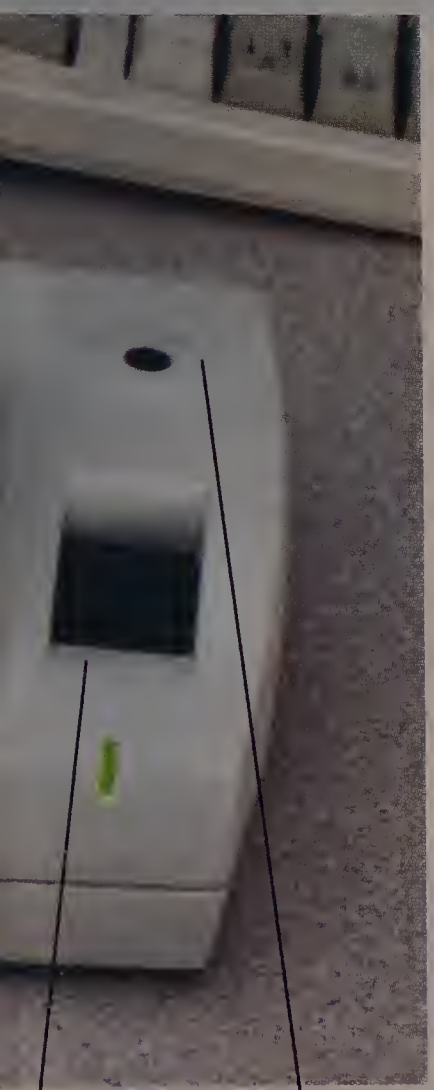
APC®
AMERICAN POWER CONVERSION

fice™ ut"

vides single device
ll your equipment

	Traditional UPS		Back-UPS Office
	•		•
			•
			•
			6
			2
			•
			•
			•
			•
			•
	10		10
			•
			•
			•
Full-time surge protection for			
Fax/Modem	•		•
Laser Printer	•		•
Speakers	•		•
Dataline protection for			
Internet or Network			•

Traditionally, protecting all your peripherals meant having to buy a surge suppressor and a UPS. Even then, only the AC line was protected. Back-UPS Office protects all paths: Bulletproof Multipath protection.



Circuit breaker
Provides protection in the event of an overload or short circuit; no fuse, no hassle.

Recessed Master On/Off Switch
Prevents accidental shut-offs and conveniently controls power to the entire connected system.

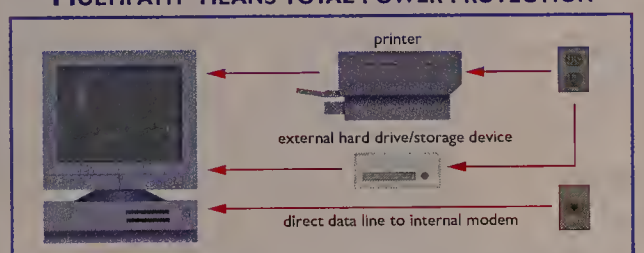
Internet Ready Fax/Modem Protection
Back-UPS Office's built-in phone line/10 Base-T network cable surge protection prevents data line surges from damaging internal and external modems, motherboards, input/output cords, and other system components.

operation of your CPU, monitor and an external storage device. Full-time surge suppression and site-wiring fault protection spreads a true Multipath safety net under any remaining integrated peripherals, like modems, printers, fax machines and phone systems. Back-UPS Office also provides convenient BlockSafe™ outlet spacing to handle all size plugs – even large transformer blocks.

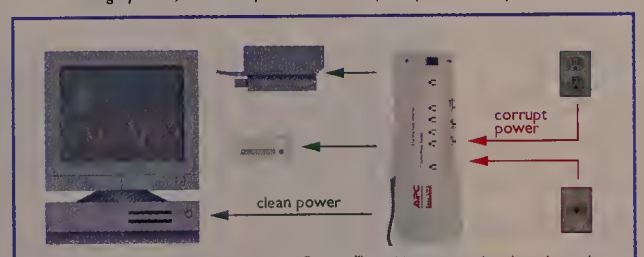
Unique Multipath protection keeps your PC and data safe

Plugging a phone line into your computer doubles your vulnerability to power problems; add any peripheral, and it triples. Even if your AC power-line is shielded, when a surge hits an unprotected peripheral, it can blaze down serial and data lines, and toast your expensive PC.

MULTIPATH™ MEANS TOTAL POWER PROTECTION



Bad power (red) can enter a computer system through multiple paths – e.g., printer, data and fax lines – even if computer A/C is protected.



The Multipath™ protection of Back-UPS® Office™ shields your peripherals and guards your computer from bad power on every path, providing clean, safe power (green), to your entire system.

Back-UPS Office protects your entire system

Until now, protection for your entire system required several devices. But multi-device protection can leave you vulnerable to line noise and unwanted data glitches created by the voltage differential between outlets. Those glitches are prevented with the Back-UPS Office common voltage reference.

Traditionally, protecting all your peripherals meant having to buy a surge suppressor and a UPS. Even then, only the AC line was protected. Back-UPS Office protects all paths: Bulletproof Multipath protection.

Back-UPS Office means true Multipath protection, clean, safe power to every peripheral, and instant battery backup to keep your cutting edge system and O/S from crashing. It means protection for less by integrating the power of a UPS with the security of a surge suppressor, guaranteed up to $25,000 (see policy for details).

Fry's Electronics
MicroCenter
Nobody beats the Wiz
CompUSA The Computer Superstore

Ask for APC award-winning power protection wherever top-quality computer products are sold.

Protect yourself before you kick yourself. Get your new Back-UPS Office today, or call APC for a FREE 60-page catalog!

Dept. P3-BF

APC®
AMERICAN POWER CONVERSION
(888)289-APCC x8014
http://www.apcc.com/8014.htm
fax: (401)788-2797 • PowerFax™: (800)347-FAXX
US/Canada: (800)800-4APC • Europe: (+33)(1)64.62.59.00
Latin America: (401)789-5735 • Asia/Pacific: (81)(3)5295-1988
CompuServe: GO APCSUPPORT • Email: bkoffice@apcc.com
• 132 Fairgrounds Rd., W. Kingston, RI 02892 USA

Circle 45 on reader service card

Spring Yields Fresh Printer Crop

PRINTER

AFTER A LENGTHY printer famine, we're facing anew the rustle of curled cellulose and the scent of laser-printer toner. Two new Fujitsu laser printers (the company's first in several years) target the small-office market, and a Xerox system in the same category features a built-in duplexer for double-sided printing—a big bonus not offered by any comparable product. We haven't yet tested these new printers.

The **Xerox DocuPrint 4512** and **4512N** (the latter includes a network adapter) use a 600-by-600-dot-per-inch monochrome engine that Xerox rates at 12 pages per minute.

TWO PRINTS IN ONE: Xerox's DocuPrint 4512 and 4512N offer double-sided laser printing at small-office prices.

The duplexer slows things down somewhat, to a rated speed of 8 ppm—4 double-sided sheets per minute.

But besides cutting paper consumption in half for many jobs, a duplexer eliminates those maddening experiments with manually flipped pages. It's no fun to discover you've printed all the even-numbered pages of an important document upside down.

Estimated street prices are $1270 for the 4512 and $1530 for the 4512N. That compares with IBM's $1250 Network Printer 12, the monochrome Best Buy in this month's Top 10 Workgroup Printers review. We love the IBM Network Printer 12, but if these new Xeroxes come anywhere near the IBM's print quality and 8.9-ppm real-world text printing speed, the duplexer will make the 4512 and 4512N terrific bargains.

Non-Adobe PostScript costs an extra $175. And to expand beyond the dual 250-sheet paper trays, you can add a 1000-sheet tray for $288.

Fujitsu rates its **PrintPartner 10V** at 10 ppm and its **PrintPartner 14AV** at (drum roll, please) 14 ppm. Both monochrome lasers are based on a 600-by-600-dpi engine that interpolates to 1200 dpi.

The 14AV unit includes a 500-sheet tray, a 100-sheet multipurpose tray, and non-Adobe PostScript. Street price is about $1100.

The PrintPartner 10V, with a 250-sheet tray, costs about $720. For either model, a network interface runs a very steep $450 extra.

Fujitsu is also touting its new toner-cartridge design that ensures all toner in a cartridge gets used.

—*Dan Littman* ▶

Fujitsu PrintPartner 10V, 14AV

PRO: Rated faster than comparable printers.

CON: A lot of add-ons to buy, especially for the 10V.

VALUE: A good deal if you don't need extra paper trays or a network connection.

Fujitsu Computer Products of America
800/626-4686
http://www.fcpa.com
Street price: 10V $720, 14AV $1100

READER SERVICE NO. 747

Xerox DocuPrint 4512, 4512N

PRO: Integrated duplexer saves paper, hassle.

CON: PostScript costs extra.

VALUE: A great deal for a duplexing printer.

Xerox
800/349-3769
http://www.xerox.com
Street price: 4512 $1270, 4512N $1530

READER SERVICE NO. 748

FAST FUJITSUS: The PrintPartner 10V and 14AV are rated at 10 and 14 pages per minute, but network interfaces aren't cheap.

QUICK TAKES

NEC's Affordable Laser

If you've ever been late to a meeting after waiting for a slow ink jet printer to churn out a long document, you know that speed counts. Thankfully, prices for fast personal laser printers keep dropping. At $349, NEC's new SuperScript 660plus sports one of the lowest street prices in its class, especially considering it comes with a parallel cable—an unusual bonus worth $20 to $25. Rated by NEC at 6 pages per minute, this compact 600-dot-per-inch laser printer comes equipped with 256K of RAM and a 150-sheet paper tray; an additional 250-sheet tray is optional. NEC also throws in a two-year warranty and a useful CD-ROM that has a helpful on-screen user guide and templates for typical business documents. NEC, 800/632-4636, http://www.nec.com.

READER SERVICE NO. 746

A simple touch makes everything easier.

Close your hand around the new Microsoft® IntelliMouse™. Right beneath your index finger is a raised rubber Wheel. In Microsoft Word 97 roll the Wheel forward. You zip up toward the top of your document. Roll it backward and you zip back toward the end. Roll it slowly to move just a few lines at a time. This is how the new IntelliMouse works with new Microsoft Office 97 and lots of other IntelliMouse-compatible programs to make getting your work done easier.

Go to Microsoft Excel 97. Press the CTRL key and push the Wheel forward or backward. You zoom in closer or zoom out farther. See how manageable even a massive spreadsheet becomes.

A final touch.

To scroll through Web pages with Microsoft Internet Explorer, press the Wheel once and move the mouse downward. Your computer goes into AutoScroll mode. Automatically, rolling line by line through your entire document. Without even lifting a finger.

© 1997 Microsoft Corporation. All rights reserved. Microsoft and *Where do you want to go today?* are registered trademarks and IntelliMouse is a trademark of Microsoft Corporation.

Microsoft®
IntelliMouse™

Microsoft

Where do you want to go today?® www.microsoft.com/hardware/

Cardinal Voyager: Interim High-Speed Solution

MODEM

WHILE manufacturers squabble over competing standards for next-generation high-speed modems, Cardinal's software-upgradable **Voyager** offers to bridge the technology gap.

New 56-kilobit-per-second modems will break the supposed 33.6-kbps barrier by adopting new technologies. Several chip and modem companies have been developing slightly different implementations of 56-kbps units. U.S. Robotics' upgrades and modems should be available by the time you read this, while modems based on Lucent, Rockwell, and 3Com technologies probably will ship in April. But the International Telecommunications Union (the international standards body) is unlikely to settle on a 56-kbps standard until 1998. The standard is important because it must be supported by Internet service providers in order for the modems to function at full speed.

The Voyager—available in $149 internal, $169 external, and $199 PC card versions—is shipping as a 33.6-kbps fax-modem. But a $79 upgrade package permits conversion to 128-kbps ISDN right away. A 56-kbps software upgrade to the U.S. Robotics implementation (the Voyager is based on USR's x2 technology)—and possibly to the eventual ITU standard—will come later. This should appeal to people who have standard analog phone service but want the option to switch to ISDN or 56 kbps down the line. No other product offers such flexibility.

Voyager modems and the $79 ISDN upgrade (which includes a cable) are slated to ship this spring. The price of the 56-kbps upgrade has not been announced, but Cardinal says it will be $100 or less. No pricing on competitors' 56-kbps modems was available at press time (U.S. Robotics' 56-kbps upgrade for its higher-priced Courier modems costs $95), but the Voyager looks like a low-cost interim option.

—Jeff Sengstack

Cardinal Voyager

PRO: Easy and cheap to upgrade.

CON: No voice capabilities, 56-kbps standard still unsettled.

VALUE: If you want a fax-modem right now, this makes sense.

Cardinal Technologies
800/775-0899 ext. 2401
http://www.cardtech.com
Street price: $149 to $199, ISDN upgrade $79. Price of 56-kbps upgrade not announced.

READER SERVICE NO. 749

Resolution Revelation From Olympus

DIGITAL CAMERA

IF YOU'RE SERIOUS about digital cameras and want the best picture quality available, look no farther than the $900 **Olympus D-300L.** Our unit arrived too late to be included in our review of digital cameras (see "Cheap Shots" in this issue), but the D-300L combines easy point-and-shoot operation with picture quality superior to our Best Buys.

Like its $599 cousin, the Olympus D-200L, the D-300L boasts a lightweight and compact design, automatic flash with red-eye reduction, a close-up mode that allows you to shoot from as close as 8 inches, and a built-in 1.8-inch color LCD screen where you can play back or preview shots as you would on a video monitor.

What distinguishes the D-300L, however, is its ground-breaking 1024 by 768 resolution—the highest to date in a camera priced below $1000. The D-300L's 6MB of internal memory can store up to 30 high-resolution pictures, or as many as 120 shots at a lower 512 by 384 resolution. Working at the higher resolution, you can substantially enlarge your digital photos—even the cropped ones—and get fine results without losing detail or sharpness.

PIXEL PERFECT: Olympus's D-300L (seen from the front and back) is the first under-$1000 digital camera to capture 1024 by 768 images.

Unfortunately, you'll need a Ponderosa-size hard disk to corral all those high-resolution pictures. Each image I saved in Adobe Photoshop PSD format occupied a whopping 2.25MB of disk space.

Impressive as it is, the D-300L would be even better if it accepted PC Cards for extra storage so you could use it indefinitely in the field. Instead, you have to download images to a PC (via a supplied cable that plugs into a standard serial port) when the memory is full.

For fast, professional-quality photos to use in presentations, publications, or Web pages, the D-300L is a great choice.

—Richard Jantz ▶

Olympus D-300L

PRO: Superior digital pictures; easy point-and-shoot camera.

CON: No removable storage capability.

VALUE: Best digital camera for under $1000.

Olympus America, Inc.
800/347-4027
http://www.olympus.com/digital
Street price: $900

READER SERVICE NO. 750

Why settle for HP or Lexmark?

Now you can afford the best.

The QMS® 2425 Print System NOW only $4,199.

PC Computing ★★★★★

PC MAGAZINE EDITORS' CHOICE

DECEMBER 1996 BYTE BEST FOR MACINTOSH WORKGROUP PRINTER BYTE LAB REPORT

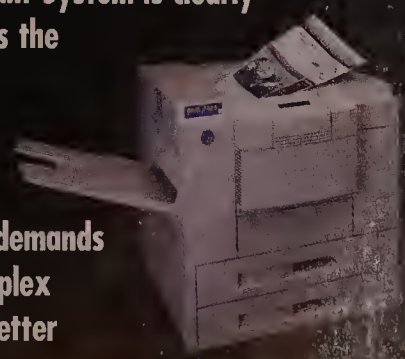
PC MAGAZINE BEST OF 1996

Features	QMS 2425 Print System	QMS 2425 EX Print System	HP® 5Si MX	Lexmark® Optra N Model 245
Resolution - Std. / Max.	600 / 1200 dpi	600 / 1200 dpi	600 / 600 dpi	600 / 1200 dpi
Duplexing*	yes	yes	yes	yes
Processor Speed	100 MHz	100 MHz	40 MHz	50 MHz
Internal Hard Drive	no	yes	no	no
RAM - Std. / Max.	8 / 128 MB	24 / 128 MB	12 / 76 MB	16 / 64 MB
Printing Speed	24 ppm	24 ppm	24 ppm	24 ppm
Forms-Enabled*	yes	yes	no	no
Image-Enabled*	yes	yes	no	no
Price	$4,199	$5,499	$4,899	$4,199

Winner PC Magazine's Editor's Choice Award
"The QMS 2425 EX completed the test in almost half the time as the competing HP 5Si MX." PC Magazine 6/11/96

Best Over All & ★★★★★ from PC Computing
"...the QMS 2425 EX Print System is clearly the top performer and has the best output quality..."
PC Computing 11/96

PC Week says —
"... Workgroups whose demands include printing more complex documents...will find a better performance in the QMS 2425 EX..."
PC Week 7/1/96



1-800-523-2696 Ext. 71

http://www.qms.com/

©1997 QMS, Inc. QMS and the QMS logo, are registered trademarks of QMS, Inc.
All other products are trademarks of their respective companies.
*Optional

QMS

Circle 225 on reader service card

FINALLY, A DIGITAL CAMERA

WITH EVERYTHING YOU NEED

TO UNLEASH THAT MAD,

IMPETUOUS ARTIST WITHIN.

Oh-la-la, make room in your imagination for the pocket-size Sony DSC-F1. Then simply aim, shoot and save up to 108 sharp, clear pictures for instant downloading of your creative genius. The DSC-F1's all-encompassing list of features includes a LCD screen for instant review, wireless* transfer of images, and of course, Sony's leading CCD technology for outstanding image quality. Making it the crème de la crème of digital cameras.

Integrated LCD screen.

For more information on the Sony DSC-F1, just call 1-800-352-7669 or visit www.sony.com/technology. And turn your work into a work of art, tout de suite.

SONY

640 x 480 Resolution, 24-Bit Color

Built-In Wireless Infrared and Serial Interface

1.8" Color LCD Screen

Stores 108 Images at 640 x 480

Built-In Flash

Video Output for TV

Rechargeable Lithium Ion Battery

Mac® and PC Connection Kit Included

Sony's Progressive Scan CCD

©1998 Sony Electronics Inc. All rights reserved. Reproduction in whole or in part without written permission is prohibited. Sony and the Sony logo are trademarks of Sony Corporation. Mac is a trademark of Apple Computer, Inc., registered in the U.S. and other countries. Screen image is simulated. *Supports Microsoft Windows® 95 IrDA Device Driver Version 2.0 (included). IrDA adapter for computer required.

HYUNDAI 15" AND 17" MONITORS CAPTURE YOUR PERSONAL PREFERENCES WITH PICTURE-PERFECT MEMORY!

TOTAL RECALL

UNFORGETTABLE COLOR IS YOURS ON THE FIRST TAKE WITH HYUNDAI DELUXSCAN® 15" (13.8V) AND 17" (15.8V) DIGITAL MONITORS. SET THE INTENSITY ONCE WITH ON-SCREEN DIGITAL CONTROLS AND INSTANT PREVIEW. PRESTO! TOTAL RECALL OF YOUR DISPLAY PREFERENCES. PLUS, HYUNDAI MONITORS ALLOW YOU TO ADJUST GEOMETRIC CONTROLS FOR EDGE-TO-EDGE IMAGING. AND HIGH RESOLUTION. ALL AT POPULAR PRICES — LESS THAN SIMILAR MONITORS WITH THESE FEATURE ATTRACTIONS. SEE FOR YOURSELF WHY NOTHING OUTSHINES A HYUNDAI MONITOR FOR TOTAL CONTROL AND TOTAL VALUE. CALL (800) 568-0060.

Circle 110 on reader service card

RETAILED BY

MICROAGE COMPUTER CENTERS 800-232-3369 INSIGHT DIRECT 800-546-0565 PC ZONES 800-258-0270 HE01

HYUNDAI
DeluxScan® Monitors

©1996 Hyundai Electronics America 800.568.0060 Fax 408.232.8146 Web: www.hea.com DeluxFacts FaxBack Service 800.501.4986

FlowCharter Update

PRODUCTIVITY

IF YOU RELY on flowcharts to visualize complex procedures, but run into problems when clients or colleagues want changes, **Micrografx FlowCharter 7** may be able to help. We saw a beta version.

This renamed upgrade of ABC FlowCharter 6 is Windows 95–compatible and includes a collaborative Living FlowCharts feature that lets users alter chart shapes to accommodate new functions.

Micrografx has also added drawing tools that put FlowCharter on a par with Corel's Corel Flow, a major competitor. A file converter for Visio Corporation's Visio is due in March as part of an upgrade that will add full Microsoft Office 97 compatibility.

Other improvements are a collection of templates, called CoolSheets, that cover such functions as organization charts, statistical process controls, and time lines—each with its own set of diagramming tools. FlowCharter 7 will ship with its earlier Win 3.1 version included.

Novices may find it too expensive and complex, but FlowCharter 7 meets virtually all diagramming needs for advanced technical and business flowcharting.

—Jeff Sengstack ▶

Micrografx FlowCharter 7

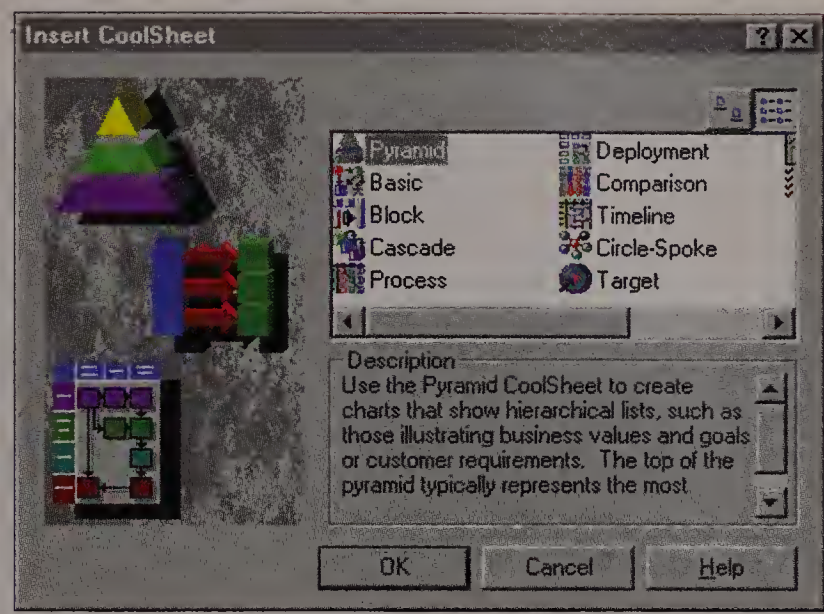
PRO: Collaborative, multiple templates; good tutorials.

CON: Too powerful and expensive for basic flowcharting needs.

VALUE: An excellent tool for professionals who analyze processes in depth.

Micrografx
800/676-3110
http://www.micrografx.com
List price: $299.95, competitive upgrade $129.95

READER SERVICE NO. 751



GOING WITH THE FLOW: Micrografx's upgrade of the former ABC FlowCharter includes CoolSheets—templates that make design easier.

HR for PCs: Policies Now

HUMAN RESOURCES

WORK FOR A company that's not quite big enough to hire a personnel manager? **Policies Now 5.0 for Windows** is a major step forward from the DOS version of this employee-handbook generator. We saw a shipping copy.

The process starts with an interactive interview about personnel policies. After you have answered the 2 to 15 questions per subject, Policies Now generates a professionally worded policy statement and corresponding entries in a table of contents and index.

You can edit the text of the handbook or modify the terms going into the index. The book can be printed from within the application, exported to a word processor or graphics program, or automatically tagged with HTML code for publication on an intranet.

The program also suggests a number of Web sites with employment policy content. Policies Now is a good personnel tool for a new company, and the $99 street price is hard to beat.

—Theresa W. Carey

Policies Now 5.0 for Windows

PRO: Easily develops complete policy handbook for any size company.

CON: None.

VALUE: Excellent and inexpensive tool for a very specific job.

Knowledge Point
707/762-0333
http://www.knowledgepoint.com
Street price: $99

READER SERVICE NO. 752

Circle 101 on reader service card

WE'VE EXTENDED OUR LINE OF MULTIMEDIA NOTEBOOKS TO OFFER EVEN MORE PERFORMANCE AND VALUE. WHAT COULD BE MORE NATURAL?

Echos Pro 150S

Echos Pro Notebook Standard Features:

Pentium® processor, PCI Bus, 256K L2 cache, 16MB RAM expandable to 128MB, 28.8K internal modem, 2 PC Card slots with PC Card Bus and Zoomed Video, Win 95 keyboard, Li-Ion battery, Multi-function bay: 8X CD-ROM (std.), modular FDD (std.) and second HDD (opt.)

Echos Pro 150S

150MHz Pentium® processor, 12.1" SVGA TFT display, 2.1GB Removable HDD

NEW **$4,999***

Echos Pro 133S

133MHz Pentium® processor, 12.1" SVGA TFT display, 2.1GB Removable HDD

NEW **$3,999***

Echos Pro 133D

133MHz Pentium® processor, 12.1" SVGA DSTN display, 1.3GB Removable HDD

NEW **$3,499***

NEW *The optional Echos™ Pro Docking System offers full port replication, Multi-function bay, drive bay, 2 PCI Card slots, plus much more. It's the perfect solution for desktop replacement.*

Echos P133S

Echos Notebook Standard Features:

Pentium® processor, PCI Bus, 256K L2 cache, 1.3GB removable HDD, Multi-function bay: 6X CD-ROM (std.), modular FDD (std.) and second battery (opt.)

Echos P133S

133MHz Pentium® processor, 16MB RAM expandable to 40MB, 11.8" SVGA TFT display

$2,999*

Echos P120E

120MHz Pentium® processor, 8MB RAM expandable to 40MB, 11.3" SVGA TFT display

$2,499*

Echos P100E

100MHz Pentium® processor, 8MB RAM expandable to 40MB, 10.4" SVGA TFT display

$2,199*

Echos P100C

100MHz Pentium® processor, 8MB RAM expandable to 40MB, 11.3" SVGA DSTN display

$1,899*

intel inside pentium® PROCESSOR

For more information about the award winning Echos Series, call us toll-free at ***1-888-465-4838*** *or visit our Web site at* ***www.olivettipc.com***

olivetti personal computers

* Estimated street price. Actual dealer prices may differ. ©1997 Olivetti Personal Computers USA, Inc. All rights reserved. Prices, configurations and specifications are subject to change without notice. Olivetti is a registered trademark and Echos is a trademark of Olivetti, S.p.A. The Intel Inside logo and Pentium are registered trademarks of Intel Corporation. All other trademarks and registered trademarks are the property of their respective owners.

Circle 162 on reader service card

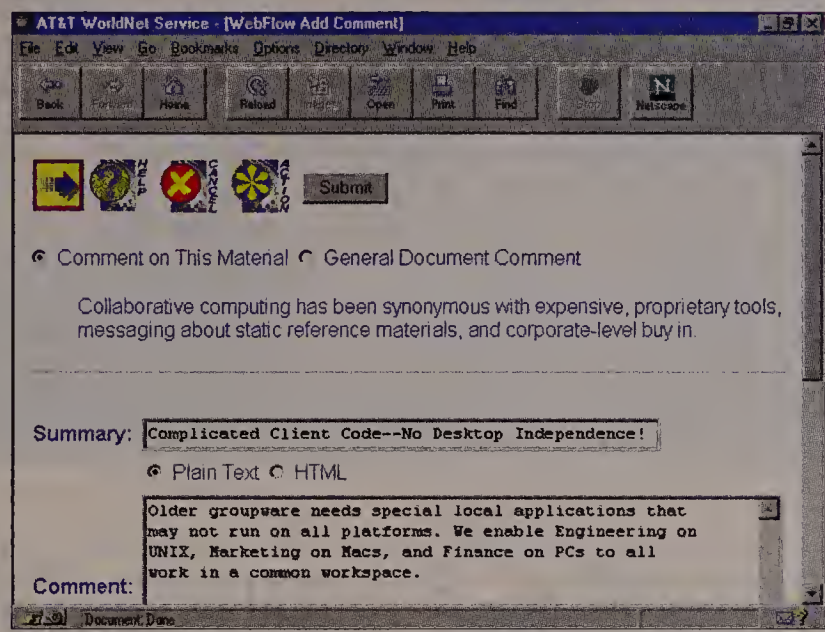
SamePage Keeps Your Office Connected

WORKGROUPS

IT'S THE AGE-OLD dilemma: You need your coworkers' input on an important project, but you don't have time to track them down.

Groupware such as Lotus Notes is one way to go; however, it requires expensive hardware and software—plus the costs of training and development. **SamePage 2.0** from WebFlow Corporation is a cheaper, intranet-based alternative; it lets users collaborate simultaneously on HTML or text documents, via any Web browser. We saw a beta version.

When registering a document with SamePage, you indicate whether it should be made available to a group of users or to individuals who are assigned specific editing rights. SamePage then copies the document to the server and breaks it down into separate "objects," each of which is indicated by a blue paragraph symbol. (SamePage does not support automatic image registration, so you must move graphic images onto the server manually.)



WORKING ON THE WEB: WebFlow's SamePage lets workers on an intranet collaborate on documents using any Web browser.

You can then view documents with a Web browser. To add comments to a section, simply click the blue paragraph symbol and enter your remarks. The comments are embedded directly below the text, allowing subsequent reviewers to see what others have said.

At the end of the review cycle, the document can be edited and either republished in SamePage or exported back to the originating application.

One crucial issue in workgroup applications is security. SamePage answers this need by providing several different levels of user access, including some that black out certain users' comments when others view the document.

You can link SamePage to several popular e-mail systems, so users can be notified of changes to a document and can respond as necessary, regardless of their access to the Web server.

A SamePage application suite includes the TakeAction program, which lets you assign and manage tasks and projects from within SamePage. Again, you can use e-mail messages to direct participants to a URL where you've posted their assignment.

Of course, more elaborate groupware applications offer features that are not available on browser-based collaboration tools—additional security, offline operation, and full-blown programming capabilities. If you require such a sophisticated environment, SamePage and TakeAction aren't for you.

But if your workgroup collaboration mainly involves document editing, assigning tasks, and basic project management—and you've got an intranet up and running—SamePage provides all the tools you'll need.

—Cathy Kenny ▶

SamePage 2.0

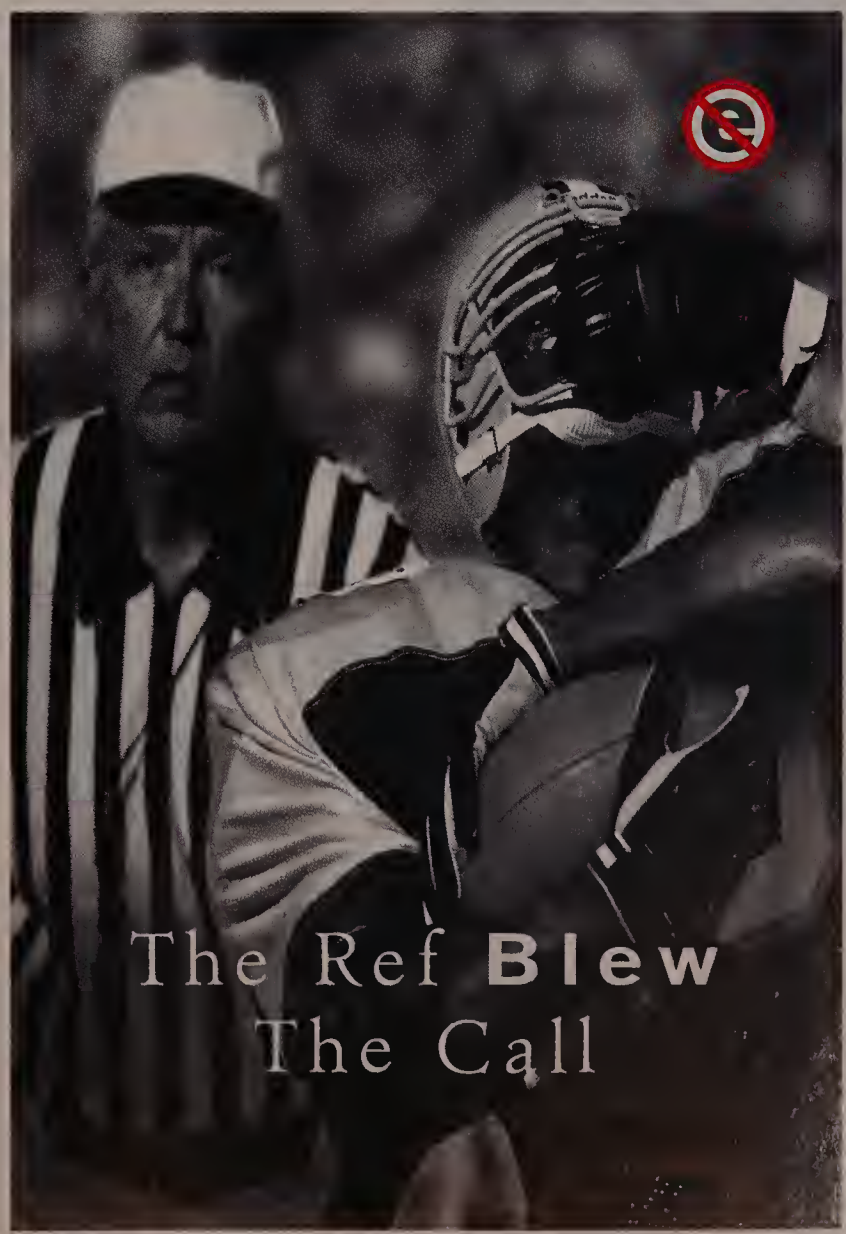
PRO: Intranet groupware needs only a Web browser.

CON: Lacks functionality of conventional groupware.

VALUE: Cost-effective tool for document-based collaboration on an existing intranet.

WebFlow Corp.
408/235-1417
http://www.webflow.com
List price: $1999 per server with 10 users for SamePage or TakeAction, $3500 for suite that includes both.

READER SERVICE NO. 753



Circle 102 on reader service card

VISIO

Graphics technology

that will help you work smarter.

Look who's using it.

Try it.

See what it can do for you.

It's a simple change

it only affects how you

think, plan and work

Chrysler Corporation is saving time by using Visio to track parts throughout the US, Europe, Mexico and Singapore. Other companies use it to save money or increase productivity. Companies such as Amoco, Hewlett-Packard and National Semiconductor.

Change is inevitable. But embrace it and your whole company can be more efficient, rise to new levels. Visio® allows you to make such a change. By using SmartShapes® technology you can create business diagrams that are both intuitive and intelligent. You'll be able to see information more clearly, think about it differently and understand it more completely. Try Visio and see for yourself. Call 800-24-VISIO, ext. F31 or visit the Visio Solutions Library™ at www.visio.com. For a corporate evaluation kit, call 800-VISIO-07.

Visualize your business™

VISIO®

© 1996 Visio Corporation. Visio and SmartShapes are registered trademarks of Visio Corporation. All other trademarks are held by their respective companies. Permission to feature Eagle Talon TSi granted by Chrysler Corporation.

Easy Photos From Video

VIDEO CAPTURE

LOOKING FOR A low-cost way to get photographs into a PC? Consider Play Inc.'s $200 **Snappy Video Snapshot 2.0** and Aims Lab's $150 **GrabIt,** two bargain-basement hardware products that permit fast and easy entry into the art of digital photography.

Both perform the same basic trick: They capture still frames from a video source such as a VCR, camcorder, TV, or videodisc player. Both are also painless to install. Attach a small gadget to your PC's parallel port, connect it to a video source via standard input-output cables (included), and then control the device using the bundled software.

I used a Super-VHS high-quality camcorder and a VHS videotape in my tests, and found both Snappy and GrabIt capable of capturing reasonably good images at adequate resolution. But while I admired GrabIt's S-VHS support and multiple-frame color preview (Snappy's is single-frame and black-and-white), I preferred Snappy overall.

Snappy's interface, picture quality, and resolution options—up to 1500 by 1125, compared to GrabIt's 720 by 480—are better, and the device comes with more software tools. For example, only Snappy supplies Adobe PhotoDeluxe SE, which includes more sophisticated image-editing tools for making further enhancements.

Morphing software comes with both products, but Snappy also throws in Kai's Power Goo image editor.

If you want to convert video into still images for documents or Web pages, you can get good results with either of these products. It doesn't get much easier than this.

—*Richard Jantz*

For more information about a product, contact the manufacturer or circle the number on the reader service card. ■

GrabIt

PRO: Least expensive product on the market, full-color preview, S-VHS support.

CON: Lacks image-editing software.

VALUE: Cheap, easy video grabber gets the job done.

Aims Lab
510/661-2525
http://www.aimslab.com
Street price: $150

READER SERVICE NO. 754

Snappy Video Snapshot 2.0

PRO: High-resolution images, cool interface, useful software.

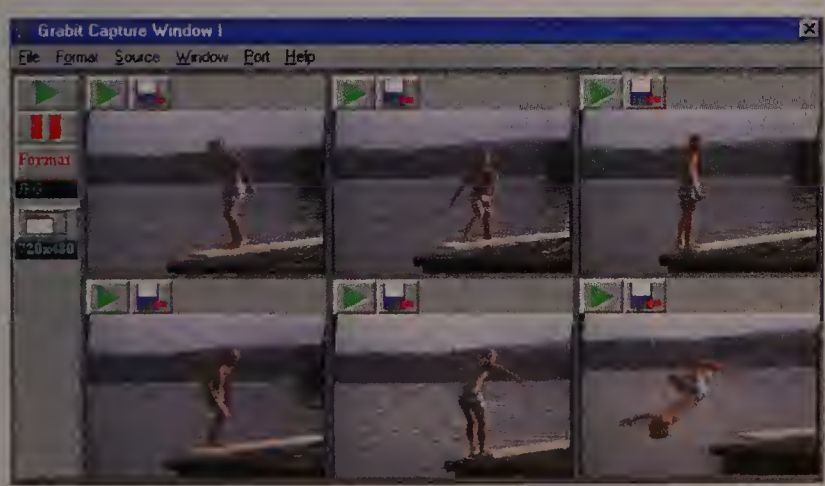
CON: Lacks color preview and S-VHS support.

VALUE: The best bang for your buck on the video-grabber market.

Play Inc.
800/306-7529
http://www.play.com
Street price: $200

READER SERVICE NO. 755

BEST OF THE VIDEO CAPTURES: Play Inc.'s $200 Snappy Video Snapshot 2.0 features superior picture quality and software.



CAPTURE A WAVE: Multiple-frame color preview—a feature of Aims Lab's $150 GrabIt—makes it easy to choose the right digital image.

No Excuses™

The excuses stop here.
Presenting PrintPartner® 10V and PrintPartner 14AV. Two reliable and affordable workgroup printers that offer 600x600 resolution enhanced to 1200 dpi class, and MarkVision™ software for remote network printer management.
Fujitsu backs each with a two-business day replacement warranty.
No Excuses.
For the PrintPartner dealer nearest you, call 1-800-626-4686 ext. 2211. There's no excuse to buy anything else.

PrintPartner 14AV

PrintPartner 10V

FUJITSU

Download your free No Excuses Screensaver at www.fcpa.com.

© 1997, Fujitsu Computer Products of America, Inc. All rights reserved. Fujitsu is a registered trademark of Fujitsu Limited. Print Partner is a registered trademark and No Excuses is a trademark of Fujitsu Computer Products of America, Inc. All other trademarks are the property of their respective companies.

Circle 100 on reader service card

COMPARE THE

AV2 785F
17"/15.8 viewable
0.28mm dot pitch
MSRP: $599

AV2 765F
17"/15.8 viewable
0.26mm dot pitch
MSRP: $639

SHINHO Electronics & Communications, Inc. is a subsidiary of the SHINHO Group, an industrial organization with business activities in: electronics, paper, steel, construction, chemicals, trade/finance, aerospace, machinery & engineering, localized power generation/environmental protection and overseas activities.

DIFFERENCE.

Specifications	SHINHO	ViewSonic	MAG
Model	765F	17GS	DJ700
Screen Size	17"	17"	17"
Maximum Resolution	1280x1024	1280x1024	1280x1024
Dot Pitch	0.26mm	0.27mm	0.26mm
Plug & Play, Vesa DDC 1/2B	Yes	Yes	Yes
MPR II	Yes	Yes	Yes
Estimated Price	$639.00	$649.00	$689.00

Aurora Vision 14"
14"/13.2 viewable
0.28mm dot pitch
MSRP: $231

AV2 585F
15"/13.75 viewable
0.28mm dot pitch
MSRP: $339

AV2 585FS
(with integrated speakers)
15"/13.75 viewable
0.28mm dot pitch
MSRP: $369

Quality

All Aurora Vision & AV2 monitors are designed & manufactured in SHINHO's ISO 9001 certified factories and are backed by outstanding customer service and an industry leading 3 years limited warranty on labor & parts, including CRT.

Performance

Every monitor provides bright, vivid colors with superb contrast and high refresh rates for flicker free imagery. Easy access On-Screen-Display adjusts for H/V size, H/V position, geometric distortion including pincushion, trapezoid, parallelogram and rotation, as well as contrast, brightness, color temperature and degauss. Of course, all AV2 monitors are Plug & Play VESA DDC 1/2B compatible and meet the MPR II standard.

Price

Best of all, you'll find all SHINHO monitors not only user friendly, but budget friendly.

Availability

And since availability is important to you, call us today for immediate delivery.

SHINHO®

SHINHO Electronics & Communications, Inc.

800•816•1002

16444 Manning Way, Cerritos, CA 90703
Tel: 310-802-8116 • Fax: 310-802-7637
Internet: http://www.shinhousa.com
E-mail: shinho@shinhousa.com

1996 SHINHO Electronics & Communications. All rights reserved. All trademark and registered trademarks are properties of their respective companies. Specifications and prices subject to change without notice.

Circle 207 on reader service card

SHARP DIRECT

ADVAN

SHARP WILL GIVE IT TO

MODULAR The WideNote comes with an ultra-compact 3.5" floppy disk drive and connects in seconds, giving you the freedom and flexibility to take what you need, when you need it.

WIRELESS COMMUNICATION At 4Mbps, our infrared communication speed is 35 times faster than the previous standard - and fast enough to provide effective wireless connections to any network.

WIDE SCREEN A sleek 5.5" high and 9.6" wide. Which gives you a diagonal viewing area of 11.2" This wide screen format enables you to view and entire spreadsheet without scrolling left to right.

LIGHT WEIGHT AND **COMPACT** At only 11.61" wide and 7.75" deep, WideNote sits comfortably in almost any working environment. Sharp delivers with a powerful notebook weighing in at 4.6 pounds.

BUILT-IN **28.8** KBPS VOICE/DATA/FAX/MODEM Surf the web for the latest information or send e-mail to an associate. Do all of this and keep your PC card slots open for other applications.

16-BIT STEREO **SOUND** AND **SPEAKERS** Built-in SoundBlaster compatible 16-bit stereo sound and stereo speakers and built-in microphone.

widenotes AVAILABLE

Pentium® 133 Processor
16MB RAM
1.1GB Drive
11.2"Dual Scan Display
28.8 Fax Modem

$2349

Pentium® 133 Processor
16MB RAM
1.1GB Drive
11.2"Active Display
28.8 Fax Modem

$2899

PC UNIVERSE

- 15 Day Return Policy
- 30 Day Exchange
- All Item Returned Must Include All Original Packaging And Documentation
- Shipping And Handling Are Non Refundable
- No Returns Without RMA Number
- All Items Carry A Full Manufactures Warranty
- All Logos And Trademarks Are Registered Trademarks Of Their Respective Holders
- We Are Not Responsible For Typographical Errors

HOURS Mon-Fri 8:30am-8pm
Saturday 10am-6pm
Sunday CLOSED

ATTENTION: Due to Industry Price Changes Call for Current Pricing
Availability. PRICES AND AVAILABILITY ARE SUBJECT TO CHANG

TAGE!
YOU AND MORE!

SHARP DIRECT

The NEW Sharp 9300D & 9300T

PC9300D

Pentium® 150MHz Processor
256KB L2 Cache
16MB EDO RAM
2MB Video RAM
1.44GB Drive
10X CD
12.1" Dual Scan Display
Glidepad
NiMH Battery
16-Bit Stereo

$2599

PC9300T

Pentium® 150MHz Processor
256KB L2 Cache
16MB EDO RAM
2MB Video RAM
1.44GB Drive, 10X CD
33.6 Kbps Fax Modem
11.3" Active Display
Glidepad
NiMH Battery
16-Bit Stereo

$3099

The Sharp PC9020 & PC9080

PC9020

Pentium® 120 Processor
16MB RAM
1.1 GB Drive
6X CD-ROM
12.1" Dual Scan Screen
16 Bit Sound Stereo
Lithium-Ion Battery

$1899

PC9080

Pentium® 133 Processor
16MB RAM
1.3GB Drive
28.8 Modem
6X CD
12.1" Active Color
Screen 1024 x 768

CALL

THE SHARP GUARANTEE

All Sharp notebooks have a 3-year parts & labor plus 1st year SharpFast coverage warranty.

1-800-728-6483

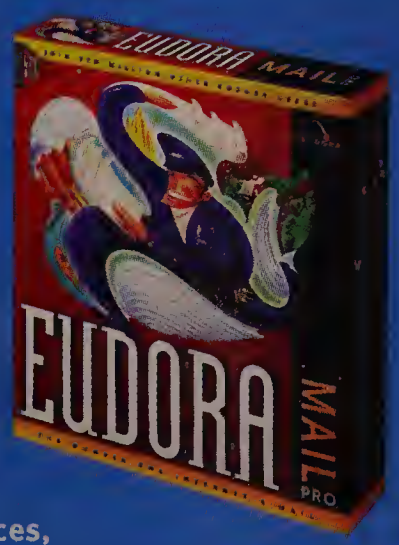
Fax 561-447-7549 • Local 561-447-0050
Web: Http://www.pcuniverse.com • Email:Sales@pcuniverse.com

PC UNIVERSE

Circle 179 on reader service card

In the time it takes to read this ad, you could get 25 e-mails.

(Let's talk filters.)



You've just been bombarded by a ton of e-mail. One from your boss. A few jokes from Bob in accounting. And the usual batch from frazzled clients. So what's the best way to handle this e-mail avalanche? Eudora Pro™ 3.0.

Unlike the Web browsers and online services, Eudora Pro 3.0 has powerful message filtering and mail management tools that help you handle large volumes of e-mail in seconds. You can automatically sort all your messages by date, subject, priority, or sender. Or have your mail automatically forwarded to other locations. You can even set up automatic responses to e-mail you receive frequently.

To find out more, just call 1-800-2-EUDORA, ext. 27098. Or send us e-mail at eudora-salespcwa@eudora.com. Or visit our Web site at www.eudora.com/pcwa to download Eudora Pro 3.0 and use it FREE for 30 days.

EUDORA

A DIVISION OF QUALCOMM

FREE 30-DAY TRIAL!

DETAILS AT OUR WEB SITE: WWW.EUDORA.COM/PCWA

QUALCOMM Incorporated, Eudora Division, 6455 Lusk Blvd. San Diego, CA 92121-2779 USA. © 1996 QUALCOMM Incorporated. All rights reserved. Eudora is a registered trademark and Eudora Pro is a trademark of QUALCOMM Incorporated. All other trademarks are the property of their respective owners.

Circle 193 on reader service card

The Pros Take Over

Pentium Pro–based machines bring extra power and features to network servers.

HEWLETT-PACKARD SCOPS BOTH BEST BUYS AGAIN with its NetServer LX Pro enterprise server (above) and NetServer LH Pro workgroup server.

PHOTOGRAPH: BEVERLY HARPER

TOP TEN SERVERS

ALMOST A YEAR after they debuted, Pentium Pro–based network servers are pushing older models out of the spotlight, claiming Best Buys for both workgroup and enterprise servers. Hewlett-Packard sweeps these awards again, although Compaq and Digital are hard on its heels. Also note that even inexpensive workgroup models are adding server management tools, Web server software, and high-reliability options.

INSIDE

109 **Build Your Own Secret Intranet**
Want an intranet, but your information systems group doesn't care? Do it yourself!

EDITED BY
Eric Bender

BY DAVE KEARNS AND WILLIAM L. RINKO-GAY

Workgroup Servers

1 HP NETSERVER LH PRO

PRO: Top performance, strong software tools

CON: Premium price

Featuring a Pentium Pro-200 CPU (upgradable to dual processors), this is the fastest workgroup server we've tested. Credit much of this speed to the two integrated Adaptec SCSI adapters and four hot-swappable Seagate 1GB drives. The inside is nicely organized and plenty expandable. The $8527 model we tested had four PCI, one PCI-EISA, and three EISA slots open, plus three externally accessible drive bays, as well as HP's excellent server installation and management software.

2 DIGITAL PRIORIS ZX 5166

PRO: Strong performance, reliability features

CON: High price, slow NetWare file service

At $9100, this is the most expensive server in our current bunch of workgroup machines, but it offers very strong performance, support, management tools, and fault tolerance options. The ZX features a Pentium-166 processor with 1MB of dedicated secondary cache; you can expand to four Pentium-166 processors with 1MB of secondary cache each. The model we tested came with two integrated Adaptec controllers and two 2.1GB Seagate hot-swappable drives (with room to add five more). Two PCI, two PCI-EISA, and four EISA slots were open.

This machine scored first in the NT Oracle test and second in all other tests except NetWare file service, where it did surprisingly poorly.

3 COMPAQ PROLIANT 1500 5/133 MODEL 2100

PRO: Good software tools, hot-swappable drives

CON: Mediocre speed on Oracle and Notes tests

This very competitive machine performs on a par with the number two Prioris. It's got good expandability, clean design, hot-swappable drives, and Compaq's leading-edge installation and management tools. And at $7399, it's also attractively priced. The model we tested came equipped with a Pentium-133 (upgradable to two CPUs) and two hot-swappable 2.1GB Seagate Barracuda hard drives. The ProLiant 1500 is a large server, and it provides easy access to all components.

4 DIGITAL PRIORIS XL SERVER 5133

PRO: Good price/performance, clean design

CON: Limited expandability

Digital Equipment's Prioris XL Server 5133 is well engineered, fast, bundled with solid server-management software, and backed by Digital's veteran worldwide support organization. It's a very good value at $5650. The Prioris runs sixth overall in performance. The model we tested came with a Pentium-133 (upgradable to dual CPUs), an Adaptec controller, and two 2.1GB Seagate Barracuda drives. Although it's fairly big, the minitower doesn't provide as much expansion space as some other workgroup servers.

PC WORLD

TOP 10 SERVERS

	WORKGROUP SERVERS	Overall rating	Street price	CPU/ RAM (MB)	Hard drives/ individual capacity (GB)	Comments	Reader service number
1	HP NetServer LH Pro 800/322-4772 http://www.hp.com	91	$8527	PPro-200/32	4/1	Fastest performance, clean design, strong software tools.	601
2	Digital Prioris ZX 5166 800/722-9332 http://www.digital.com	90	$9100	P-166/32	2/2.1	Excellent performance, high-reliability features; pricey.	602
3	Compaq ProLiant 1500 5/133 2100 800/345-1518 http://www.compaq.com	90	$7399	P-133/32	2/2.1	Good software tools; mediocre application performance.	603
4	Digital Prioris XL 5133 800/722-9332 http://www.digital.com	89	$5650	P-133/32	2/2.1	Good price/performance; limited upgradability.	604
5	Digital Prioris HX 5166 800/722-9332 http://www.digital.com	87	$7462	P-166/32	2/2.1	High reliability, good file-service performance.	605
	ENTERPRISE SERVERS						
1	HP NetServer LX Pro 6/200 800/322-4772 http://www.hp.com	92	$30,205	4 PPro-200/128	6/2.1	Top file performance, good design, strong software tools.	606
2	Digital Prioris ZX 6200 MP/2 800/722-9332 http://www.digital.com	91	$23,874	2 PPro-200/128	7/2.1	Top price/performance, reliability features, easy maintenance.	607
3	Compaq ProLiant 5000 6/200 800/345-1518 http://www.compaq.com	90	$30,899	4 PPro-200/128	4/2.1	Excellent tools; mediocre overall price/performance.	608
4	Land-5 HPS 550 888/225-2635 http://www.land-5.com	89	$38,529	4 P-133/128	6/2.1	Rack-mounted server with strong high-reliability features.	609
5	Acer AcerAltos 19000 800/733-2237 http://www.acer.com	88	$16,450	2 PPro-200/128	8/2.2	Highly expandable storage; slow.	610

Best Buy http://www.pcworld.com/networking/servers All products: 901

5 DIGITAL PRIORIS HX 5166

PRO: Good file-service speed, reliability features

CON: Slow application performance

The $7462 HX is very similar to the Prioris XL in design and overall performance, but the machine we tested came with a Pentium-166 CPU (upgradable to dual Pentium-200s) and a host of high-reliability features. The HX showed good file-service speed but lagged behind its peers in overall application performance.

Enterprise Servers

1 HP NETSERVER LX PRO 6/200 SMP

PRO: Top file performance, good design

CON: Mediocre database price/performance

The LX's strong performance, high reliability, and expandability, plus HP's management software and excellent service and support, make it a good choice for any enterprise.

This $30,205 machine offers outstanding performance overall and as a file server, second in each case only to that of the DG Aviion 4900-200. Database performance is less than stellar, however—11 percent behind that of the Compaq ProLiant 5000 6/200.

The large chassis can hold 12 hot-pluggable drives and six other storage units. Our test machine came with four Pentium Pro-200 CPUs, six 2.1GB Seagate drives, two open PCI slots, and three hot-pluggable power supplies.

2 DIGITAL PRIORIS ZX 6200 MP/2

PRO: Great price, solid management tools

CON: Moderate performance

Although capable of supporting four Pentium Pro-200 processors, the ZX came configured with only two (each with 512K of secondary cache). Performance was creditable, in the middle of the pack of four-processor machines—18 percent below the NetServer LX Pro on file service, and only 7 percent below on the Oracle test. That's quite an achievement at a price of $23,874.

Other features are competitive as well. The small chassis takes only two standard and seven hot-pluggable devices, but Digital expects you to add storage capacity in an external chassis. The machine we tested came loaded with seven hot-pluggable 2.1GB Seagate drives, an Adaptec RAID controller, two redundant power supplies and redundant cooling fans. The system is easily serviced and comes with Digital's well-regarded software tools.

Get Full Results on the Web

Check out http://www.pcworld.com/networking/servers/ for more detailed product reviews and results of performance testing with the new PC WorldBench for Servers 2.0 benchmark. We also post reviews of Best of the Rest servers, which did not make the Top 10 Servers chart:

WORKGROUP: Acer AcerAltos 900, AST Manhattan S6200, and Tangent Alcazar II.

ENTERPRISE: Austin Affinity XE, Data General Aviion 4900-200, and Tangent Carthage.

3 COMPAQ PROLIANT 5000 6/200

PRO: Great database speed and software tools

CON: Mediocre performance for the price

The ProLiant 5000 we tested came with four Pentium Pro-200 CPUs (each with 512K of on-chip secondary cache) at a street price of $30,899. It also featured 128MB of memory (expandable to 4GB), ultrahigh-speed processor and memory buses, dual PCI buses, four hot-pluggable 2.1GB Seagate Barracuda drives (expandable to 17.2GB internally), Compaq's Smart-2 Array Controller, and many other bells and whistles.

But the ProLiant is not a performance giant. Overall speed is mediocre, although it posted best times for our Oracle NT test.

Compaq's management tools are first-class, offering everything from customized installation of selected operating systems and applications to easy downloading of drivers over the Internet.

There are five hot-pluggable drive bays; our unit had three slots (two PCI) open.

4 LAND-5 HPS 550

PRO: Industrial-strength reliability and features

CON: Price, mediocre performance

Land-5 sent us a server that wins no price/performance prizes but aims instead to offer excellent uptime *and* upgrades. We tested the machine as both a $38,529 quad Pentium-133 system and a $43,999 quad Pentium Pro-200 system. Oddly, performance was essentially the same—in the middle of the pack, 6 percent below the NetServer LX Pro overall.

This rack-mounted server is intended for a heavy-duty industrial installation, with the hard drives in a second chassis. It includes dual power supplies in both CPU and drive chassis, an Adaptec RAID controller, hot-swappable drives, redundant hot-swappable power supplies, and modems for remote management.

You can go up to eight processors with Windows NT. The six Seagate Barracuda drives in the model we tested gave 13.2GB of storage. You can go all the way to 18 terabytes with additional storage units.

5 ACER ACERALTOS 19000

PRO: Expandable, reasonable price

CON: Slow

If bigger were always better, the $16,450 Acer AcerAltos 19000 would be the best server we've seen. This behemoth has room inside for 14 hot-pluggable drives, four more standard drive bays, and a lot of extra space. However, there are only eight expansion slots: five PCI, two EISA, and one combo. The model we tested had a Mylex adapter with a 16MB cache and no less than eight 2.2GB IBM drives.

The 19000 offers up to two Pentium Pro-200 processors, and we tested such a model. It lagged behind quad-processor machines: It was three-quarters as fast as the NetServer LX Pro on Oracle service, two-thirds as fast on file service, and half as fast on our Lotus Notes test.

You can access all components easily, and Acer bundles server installation and management software.

Dave Kearns is a network consultant and writer in Austin, Texas. William L. Rinko-Gay directs the Network World–PC World Network Test Center.

COMPRO
The Way to Go

Web Page.

$50
Manufacturers
Mail in Rebate
Good Thru 3/31/97

GOLD NETSCAPE NAVIGATOR™ INCLUDED

Web Pizazz!

Spice up your Web page designs using the Compro™ Color Digital "Internet Camera"™.

A picture is worth a thousand words. And Web pages with still and video images made from the Compro™ Color Digital "Internet Camera"™ turn drab text into stunning visuals.

With 16.8 million color images and adjustable focus lens, it's also great for video chat, video conferencing, and video e-mail. Affordably priced under $230.00, it comes complete with Netscape Navigator™ Gold for web browsing and web page development. Easy to install. Just plug it in and it's ready to go when you are. To see one for yourself, contact the retail location nearest to you or call toll free 1-888-2COMPRO for more information, or browse our web page at http://www.acscompro.com.

With the Compro™ Color Digital "Internet Camera"™ you can make your pages sizzle.

ACS Innovations, Inc. 3171 Jay St. Santa Clara CA 95054-3308 1-888-2COMPRO http://www.acscompro.com

Available at: COMPUSA THE COMPUTER SUPERSTORE **Call 1-800-COMPUSA for your closest location.** WAL★MART online **www.wal-mart.com**

Note: All trademarks and trade names belong to their respective companies.

Circle 10 on reader service card

Build Your Own Secret Intranet

Your group is already surfing the Web but you all still work the same old way? Launch your own private intranet—for cheap!

BY MARK GIBBS

WELCOME TO THE GIBBS SCHOOL of Secret Intranetworking. Please relax and drop your disguises—no one knows you are here.

You are managers, right? You run your groups well.

But you know you could do better, and you know what's holding you up—the failure to communicate! You want members of your group to share information better, to avoid having items drop through the cracks, to hear news quickly, and to easily find key documents and other crucial information.

To do, in short, the same kinds of things with your colleagues that you all do on the Internet. ▶

ILLUSTRATIONS BY MARK MATCHO

You suspect, in fact, that you could use exactly those Internet tools to get some serious help at work—if only you could get the right systems in place. Does your company's information systems group care? Sometimes, if you're lucky. But if what you want to do on the company network isn't something that counts as a corporate strategic issue, you might as well forget it. The IS folks have their own problems, and yours are just not interesting.

That's it. No way around it, no light at the end of the tunnel, just doom, despair, and the sound of IRS auditors rummaging through your bookkeeping late into the night...except...well, actually there is one thing. One way out. One option that could change everything:

Your group's own private intranet.

Yes, you in the back waving your hand frantically, that's right. An intranet is just an internal Internet that lets everyone share any information they like with software that's already on their PCs: their Web browsers.

Now, I know what you're going to say: "The information systems people are building our corporate intranet and we'll only get what they choose to give us when they get around to it."

But I say "nonsense!" Stand up and be counted! Beg, borrow, or steal an intranet server! If you can't get away with that, build one, and create your own intranet.

WHAT CAN WE START DOING RIGHT AWAY ON OUR INTRANET?

FORGET ALL THAT cool stuff you see on the big commercial World Wide Web sites. Sure, you'd like to be on the cutting edge, but your first priority is sharing data in your group. For that, you don't need anything fancy. You just need space on an intranet (Web) server. Beg some space on an existing server from the IS folks, or get really subversive and do it all yourself (see "An Intranet Server Recipe").

Once you've got that server for your intranet, you can do a surprising amount without using server-based software or specialized browser functions. It's easy to put valuable documents, presentations or just about any kind of material you please on an intranet server.

For example, if you bought your desktop suite in the past year or so, you can use its word processor to crank out a version of a document, such as a project proposal, in HTML format (the lingua franca of the World Wide Web) and plop it ▶

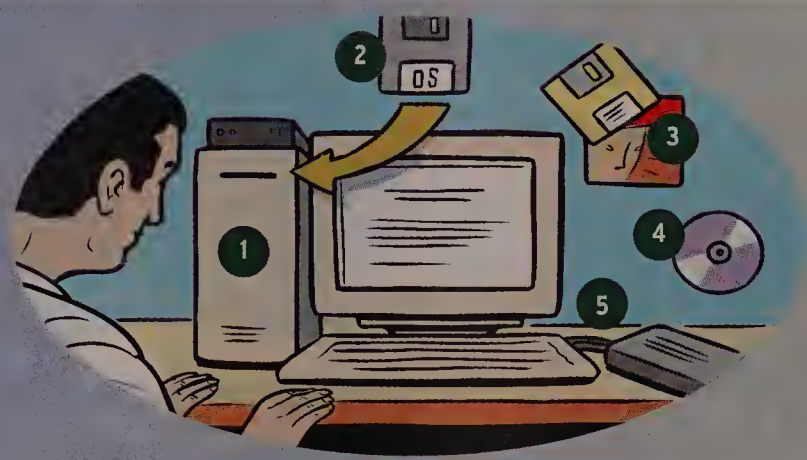
An Intranet Server Recipe

ARE YOU ON a tight budget and can't get the information systems folks to share their toys? Here's how to get started on a departmental intranet anyway.

First, take one PC that has a fast 486 CPU or better, a network adapter and some cabling, at least 16MB of memory, and a 500MB or larger hard drive. For a Macintosh-based system you'll need something like a PowerMac 6150/50 with 16MB of memory. Yes, you will need a blessing from the information systems troops to add a machine to the network.

Note that you can also share someone's existing computer, although you'll probably have to add memory—32MB is about the minimum you'll need in a shared system. And make sure that person's PC is fast (a Pentium-90 is the absolute minimum). Otherwise, the server will stop serving every time it recalculates a spreadsheet.

Second, install an appropriate operating system such as Windows 95 or Windows NT, NetWare OS/2, MacOS, or UNIX, depending on whatever's comfortable for you.



MINIMUM INTRANET SERVER REQUIREMENTS—components and their costs—include: 1 Fast 486 CPU, 16MB of memory, 500MB hard drive PC: $2000 and up 2 Operating system: $0 to $1000 3 Low-end Web server software: $0 to $1000 4 Intranet software tools: $0 to $500 5 Network adapter and cabling: $100 to $200

Third, add Web server software. You have a legion of choices, but start with the simplest and cheapest. Here's a sampling of what's available:

- **Apache** (http://www.apache.org) works on OS/2 and UNIX platforms. This is the most popular choice for Web servers on the Internet by a long shot. It is rich in features and has good (if rather technical) documentation. It is free, but there's no support.
- **Microsoft Internet Information Server** (http://www.microsoft.com) is now bundled with Windows NT 4.0. This is a credible intranet server, handy if you're happy with NT, and you *can* get support. Note also that Microsoft FrontPage comes with its own Web server for both Windows 95 and NT.
- **Novell's NetWare Web Server** (http://www.novell.com) costs $995 and is awesomely fast but not terribly easy to set up.
- **Netscape's FastTrack server** (http://www.netscape.com) is priced at $295; there are versions for Windows 95, NT, and various flavors of UNIX. Designed for easy installation and use, it actually is quick to get up and running and offers some nice features.
- **Building Your Own WebSite for Windows 95 and NT,** from O'Reilly and Associates (http://www.ora.com), comes on CD-ROM with some of the best documentation around for $59.
- **WebStar for Macintosh,** which is from Quarterdeck (http://www.quarterdeck.com), is an effective solution for Macintosh servers, with many advanced features; it costs $895.

Corel Leaps Ahead of Microsoft in Java™ Publishing!

File Edit View Go Bookmarks Options Directory Window Help

Back Forward Home Reload Images Open Print Find Stop

Location: http:\\www.wordperfect.com

What's New! What's Cool! Handbook Net Search Net Directory Software

Industry experts are calling Java™ the wave of the future. At Corel, the future is now. Corel® WordPerfect® Suite 7 and Corel® Office Professional 7 go beyond Microsoft® Office 97 by offering unique Corel Barista™ technology that unleashes the full publishing power of Java.

Java™–Breaking the Boundaries of Traditional HTML Publishing

Java Language Output Using Corel Barista™ Technology - Corel WordPerfect Suite 7 and Corel Office Professional 7 are the *first* office suites that allow you to publish to the Java Language from core applications—Corel WordPerfect 7, Corel® Quattro® Pro 7 and Corel® Presentations™ 7.

Advanced Web Publishing Capability - Publish impeccably formatted documents directly to the Web from all core applications keeping all text, graphics and formatting intact. Create columns, build tables and wrap text around images in your documents and publish to Corel Barista—what you see is *really* what you get!

Powerful Graphics - Tap into the power of the world's best illustration software with the CorelDRAW™ 6 illustration module included in Corel Office Professional 7.

Virus Free† - Steer clear of the recently identified Microsoft® Word macro viruses. With Corel WordPerfect Suite 7 and Corel Office Professional 7, it's safe to share documents with your co-workers.

Corel's Office Suites Provide:

✔ Java™ technology ✔ Advanced Web publishing ✔ Powerful graphics

Don't be held back by Microsoft Office 97. ONLY Corel WordPerfect Suite 7 and Corel Office Professional 7 let you unleash the FULL POWER of JAVA.

Circle 70 on reader service card

BYTE PC WORLD BEST BUY

†Source: *WordPerfect For Windows Magazine*, November 1996, p. 21

Corel, WordPerfect and Quattro are registered trademarks and Barista and Presentations are trademarks of Corel Corporation or Corel Corporation Limited. Netscape is a trademark of Netscape Communications Corporation. Java is a trademark of Sun Microsystems, Inc. Microsoft is a registered trademark of Microsoft Corporation. All other product or company names are trademarks or registered trademarks of their respective companies.

$100 mail-in rebate offer!
(For Corel Office Professional only.) Valid until March 31, 1997.
Some restrictions apply.

COMPUTER City SUPERCENTER®
1-800-THE-CITY
1-800-843-2489

Call for direct connect to your nearest store.

Corel® Office Professional 7	Corel® WordPerfect® Suite 7
$199.99* Competitive upgrade CD-ROM version	$84.99* Competitive upgrade CD-ROM version
$299.99* Full CD-ROM version	$289.99* Full CD-ROM version

*US$ plus applicable taxes.

COREL WTA
Corel, Official World Title Sponsor of the COREL WTA TOUR

COREL
http://www.corel.com
Call now for faxed literature!
1-613-728-0826 ext. 3080

Document: Done

KUR-0346-US

onto an intranet server. Ditto for a presentation. In fact, you can drop plain old text documents onto the server if you want—they can be read by your browser as easily as an HTML document. And if you've got search software running on the server, you can find the document even if nothing is linked to it.

Why, you ask, would you want to do any of this? Because by storing, searching for, and retrieving documents from an intranet server you can save a lot of time in making key documents available to everyone—regardless of what machine they are on or where they are.

If there's a mistake in something published to the server, you just correct it and inform the workgroup that the document has changed. You don't have to send everyone another piece of dead tree smeared with ink, or point them to a file with a complicated path name that requires software half the recipients don't have. Instead, you just send a link to the document—one click and they have it.

Just send them a link to the document—one click and they've got it.

Encourage your group to drop everything really useful into the intranet server. Give someone the job of scanning your intranet to see what's posted and have them generate an e-mail message once a week to tell everyone what's new.

For example, when Chris in the development group posts the latest project specs on the intranet server, make sure everyone involved in the project knows how to find it. Then encourage them to send Chris their thoughts and ideas.

You might even invest in a personal document scanner so that group members can add any hard-copy document to the intranet file set.

Good point, you in the Eddie Bauer jacket. Doing this in a more structured way is indeed quite helpful. For example, you can post a staff directory, which can be useful for larger groups and situations in which group members either telecommute or travel a lot. Within the directory, every group member creates a personal home page listing what their job is, who they report to, what they are working on, their telephone number, and their planned schedule.

It's even better, of course, to add server-based software to organize what you post. If you can store customer service records in an online database rather than in a series of discrete documents, you will have a more manageable system.

But don't let the potential confusion of thousands of documents put you off. There are times when even a mess of useful documents is better than no documents at all. Once you can demonstrate how practical this approach is, it's easier to get funding for adding higher-powered server applications.

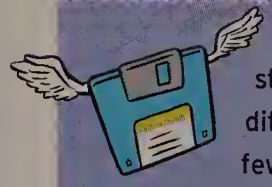
WHAT ELSE CAN WE DO?

IF YOU INVEST a little money in software and can afford the time to get it up and running, you can do plenty. And if you're willing to dabble in a little light programming, or have a co-worker who can do it, the information world opens up. Here are some of the possibilities:

1 Publish existing company data such as product and client databases. There are now plenty of tools that allow you to take existing databases and drop them into intranet servers. (Doing this can sometimes be tricky.)

2 Improve customer service. You can buy some fancy and expensive applications to really nail the problem of resolving ▶

Intranet Tools for the Rest of Us



YOU COULD TELL each story in the naked city with a different Web tool. Here are a few of our favorite page editors and database packages for intranet use (see "An Intranet Server Recipe" for URLs not listed here):

WEB PAGE EDITORS: FutureTense's $495 **Texture Designer** (http://www.futuretense.com) is an excellent editor for slick content presentation. It's been described as "PageMaker for the Web." Microsoft's $149 **FrontPage** is another first-class editor with a slick graphical interface and lots of templates, wizards, and clip art to get you started. **Word for Windows 95 with Internet Assistant for Word** is a tolerable basic editing system; **Word for Windows 97** is much better. Netscape's $79 **Navigator Gold** is a reasonable entry-level editor, and you may already know the interface. SoftQuad's $159 **HotMetal Pro** (http://www.softquad.com) is a great choice for the technically inclined.

WEB DATABASE PRODUCTS: Allaire's $495 **Cold Fusion** (http://www.allaire.com) is a well-rounded Web development tool. Alpha Software's $995 **WebFiler** (http://www.alphasoftware.com) lets normal folks build intranet databases. Corel's $100 **Web.Data** (http://www.corel.com) is good for translating existing databases for intranet uses. So is Borland's $500 **IntraBuilder Professional** (http://www.borland.com), but this package is at a more advanced level.

TOOLS LIKE MICROSOFT FRONTPAGE 2.0 make it cheap, easy and (shh!) actually fun to create a working intranet site.

"TrackMan Marble never needs cleaning. It fits the way I work. I love it!"

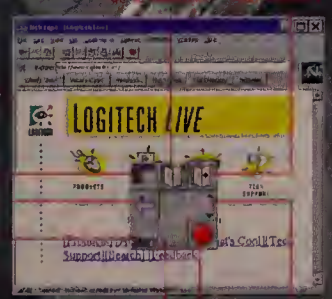
Barrimore Zarsprach
Automotive Designer

SOFTWARE TO SAVE YOU TIME
Easily programmable buttons convert time-wasting stuff like double clicks, draglock and repetitive menu selections into speedy single clicks.

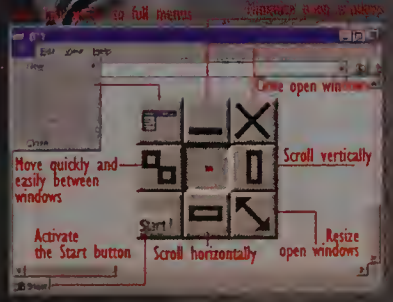
SHAPED TO KEEP YOU COMFORTABLE
As your hand rests here, your thumb alights naturally on the Marble™ Trackball.

GUARANTEED NOT TO LET YOU DOWN
Behind the best warranty in the industry stands the company that makes the mice and trackballs people love most.

CyberJump shortcuts give you quick access to backpage, scroll bars, bookmarking and other Netscape Navigator™ functions.



Scroll through Windows 95 with our revolutionary "HyperJump" technology. It's the easiest way to access eight important Windows 95 commands with a single click.



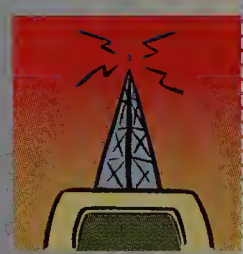
TrackMan® Marble™ is the latest in the world's most loved line of mice. All offer unique three button functionality and are guaranteed by the world leader in pointing devices: Logitech®. Call **1-800-732-3053** for more information, or for information by fax, call **1-800-245-0000,** Document 4026. And to get a free version of MouseWare 7.2 with HyperJump and CyberJump technology for your TrackMan Marble, visit us on the Web at www.logitech.com

LOGITECH
Products people love

™® - trademarks are the property of their registered owners.

Top 5 Intranet Do's and Don'ts

WIRED



1 **Do put useful material on your intranet.** The more relevance your intranet has to people's work, the more they'll use it.

2 **Do start simple.** Intranet technologies aren't that difficult, compared with other PC technologies, but unless you start small, you'll die from overwork.

3 **Do keep costs down.** Once you've got it all working, you may well be able to get more funds.

4 **Do get everyone involved.** The key to a successful intranet is having the entire group contribute.

5 **Do make it look nice.** At the least, put some attractive graphics and an image on your intranet's home page.

FIRED

1 **Don't get buried in technicalities.** It's easy to get caught up in lots of flashy Web tricks, but that's a great way to burn a huge amount of your time.

2 **Don't force your people to use the intranet.** Get them involved by encouragement, not threats.

3 **Don't restrict what your people can put on the intranet,** aside from what common sense and standard company policies dictate.

4 **Don't worry about minimizing graphics.** Your internal net won't slow down much unless you hurl around 10MB images.

5 **Don't tell the information systems folks too soon.**

specific customer issues. If that's not possible, try just logging calls and solutions to your intranet server and ensuring that these documents can be searched. This alone will provide an invaluable resource for planning, projects, and sales.

3 Record and track project information. Create for each project a page for posting status and task information, and link relevant documents to it. This helps to make your intranet the equivalent of a knowledge base for past, present, and future work. Again, you can buy all sorts of sophisticated intranet project applications if you have the bucks.

4 Create a sales reporting system. Store all sales reports, call reports, and customer information on your intranet. In some cases, you may even want to link this material to news stories, customer service records, and support information.

5 Replace internal paper forms. A plethora of products is available to let you build simple forms that capture data and funnel it into e-mail or databases—all without having to do programming.

6 Talk about it. Group discussion tools are moving to the Internet, and to intranets, in a big way. They can be surprisingly useful for small groups that are dispersed.

7 Deliver the news. You can let everyone who has time wander around the Web and the intranet to scope out news. Or (much better) you can put some software on your server that systematically collects data from the most likely sources and pushes it out to all concerned.

BACK TO BASICS: HOW DO WE GET THAT INTRANET SERVER?

WELL NOW, that depends on your organization's political environment, doesn't it? If your IS group has an intranet server up and running, try to get them to help you. If they're hesitant, tell them that you won't need any support—that you only need some space and access for your group.

If you can't get help from the IS folks, you'll have to get creative and build that stealth intranet server yourself.

This is really not as hard as you might think. You can even run the server software on somebody's desktop system as long as they have a powerful enough processor and enough memory. If you can get a dedicated PC on the network, that's better, and a pensioned-off 486 is a fine start. After that, it's a question of operating system and server software (see "An Intranet Server Recipe").

Now you just need to get the system up and running, add any applications you need, tweak it for your group, and start putting some actual content on it. And if you want to be able to call into it from out of the office, give it a modem, put it on a phone line, and enforce some passwords.

IS IT REALLY THAT EASY?

IT REALLY IS that easy to get started with an intranet. And it happens all the time.

The IS department of one of my clients, a Fortune 100 manufacturer, was planning to build a corporate intranet. I suggested that we see how many intranet servers were already up and running. "Oh, no," they said. "Don't bother. There aren't any. Ours is the first."

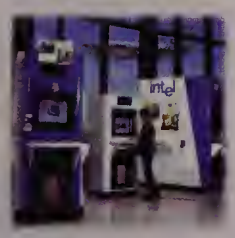
But I persuaded them to check anyway. Guess what? There were already seven servers running. Why was this? The IS department was too slow, and it was so easy for these other departments to solve the problem themselves, they just did it. And these were major departments, including sales and accounting. They had put schedules, notes, project plans, and a whole range of, well, *stuff* online.

If your IS group does make it over the hill with great new tools for all, so much the better.

In the meantime, you now know what you can do. Good luck with your secret intranet. Please leave through the back door. We'll e-mail your diploma if you contact us via an anonymous remailer. Oh, and hail the revolution!

Mark Gibbs is an independent consultant and a contributing editor to Network World. *He can be contacted at mgibbs@gibbs.com.* ■

Winning the race... all for you.



Intel and Quantex form a partnership promoting Videophone technology in Newark International Airport to thousands of busy travelers.

Motorola joins hands with Quantex to offer an impressive ISDN solution.

Quantex offers the Panasonic® PD/CD-ROM Drive, the most reliable storage device on earth!

It's the final stretch ...

The companies with lots of layers are getting bogged down, unable to keep up. The smaller, fly-by-night companies are simply running out of stamina, not able to catch their breath. Who's up front? Quantex, like usual.

What sets us apart?

We react quickly to market trends and we bring you the latest technology first- and for the best value. Our track record is mighty impressive. In many areas, our competition still hasn't caught up with us. They're huffing and puffing in the distance.

The cheers begin...

It looks like Quantex is in the lead once again. The new winner: Quantex systems including the Pentium® Processor with MMX™ technology!

Choose Quantex and Take The Technology Lead

QUANTEX
GOOD CHOICE.℠

"First in Technology

$2499

QP5/200 SM-3

(with MMX™ Technology) Business lease:$ 88/month

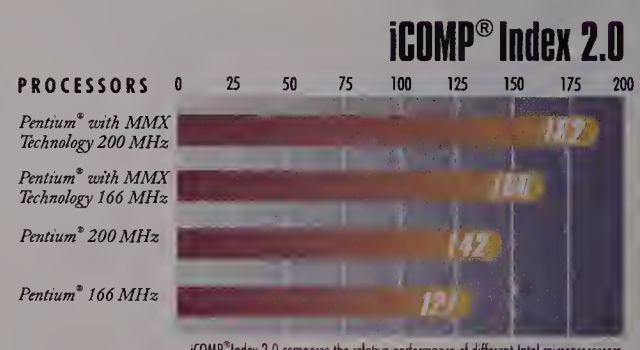
- 200MHz Pentium Processor with MMX™ Technology
- 32MB EDO Memory / 512KB Pipelined Burst Cache
- 4GB EIDE Mode 4 Hard Drive
- 3.5" 1.44MB Floppy Drive
- Matrox Millenium 3D w/4MB WRAM
- MAG 17" Digital Monitor (16.1" viewable)
  (Special upgrade to MAG DX700T for $99)
- 33.6 Kbps Fax/Modem w/Voice Mail and Speakerphone
- Toshiba 12X 125ms EIDE CD-ROM Drive
  (Upgrade to the Panasonic PD Drive for $179)
- Ensoniq VIVO-90 32-Bit Wavetable Synthesizer
- Altec Lansing ACS-45 Speakers w/subwoofer
  (Special upgrade to ACS-400 speakers with ACS-250 subwoofer for $99)
- Mid-Tower Case
- 104-Key Keyboard With MS PS/2 Mouse
- MS Windows '95 With MS Plus
- Quantex Software Bundle (Including Corel WordPerfect Suite)
- 3-year limited Warranty, 24-hr. / 7-day Technical Support

QP5/166 SM-3 (w/MMX™ Technology).....$2299
Best Buy QP6/200 SM-3 (w/Pentium Pro processor)....$2549

MMX™ intel inside pentium® PROCESSOR

The Pentium® Processor with MMX™ technology... Quantex brings it to you first!

We've won the technology race once again! How? By being one of the first companies to offer systems with MMX™ technology. With MMX technology, you can expect a performance increase of up to 60% on Intels Media Benchmark.

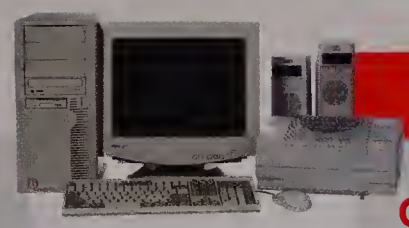


iCOMP® Index 2.0 compares the relative performance of different Intel microprocessors.

At Under $2,500, We've Broken the Price Barrier

With quality components, Quantex offers a value that can't be outdone. This new Quantex system with MMX™ technology is a package of speed, power and accelerated performance. Buy a Quantex and be on the cutting edge of technology (and save money too).We include only the best performing components in our systems. And, with great service and support, Quantex is a sure winner.

First in Value... (once again)!"



Power Multimedia Series

QP5/166 SM-1 (w/MMX™ Technology) $1899

Business lease: $ 67/mo.

- 166MHz Pentium Processor w/MMX™ technology
- 32MB EDO Memory / 512KB Pipelined Burst Cache
- 2.5GB EIDE Mode 4 HD / 3.5" 1.44MB Floppy Drive
- Diamond Stealth 3D 2000 w/4MB EDO DRAM
- MAG 15" Digital Monitor (14.0" viewable)
- 33.6 Kbps Fax/Modem w/Voice Mail and Speakerphone
- Toshiba 12X 125ms EIDE CD-ROM Drive *(Upgrade to Panasonic PD Drive for $179)*
- Ensoniq VIVO-90 32-Bit Wavetable Synthesizer
- Altec Lansing ACS-90 Speakers
- Mid-Tower Case
- 104-Key Keyboard MS PS/2 Mouse
- MS Windows '95 With MS Plus
- Quantex Software Bundle (Including Corel WordPerfect Suite)
- 3-year limited Warranty, 24-hr. / 7-day Technical Support

QP5/200 SM-1 (w/MMX™ Technology).....$2099
Best Buy QP6/200 SM-1 (w/Pentium Pro processor)...$2149

QP5/166 SM-2 (w/MMX™ Technology) $2199

Business lease: $ 77/mo.

- 166MHz Pentium Processor w/MMX™ technology
- 32MB EDO Memory / 512KB Pipelined Burst Cache
- 3.2GB EIDE Mode 4 HD / 3.5" 1.44MB Floppy Drive
- STB Velocity 3D w/ 4MB VRAM
- MAG 17" Digital Monitor (16.1" viewable)
- 33.6 Kbps Fax/Modem w/Voice Mail and Speakerphone
- Toshiba 12X 125ms EIDE CD-ROM Drive *(Upgrade to Panasonic PD Drive for $179)*
- Ensoniq VIVO-90 32-Bit Wavetable Synthesizer
- Altec Lansing ACS-45 Speakers w/subwoofer
- Mid-Tower Case
- 104-Key Keyboard MS PS/2 Mouse
- MS Windows '95 With MS Plus
- Quantex Software Bundle (Including Corel WordPerfect Suite)
- 3-year limited Warranty, 24-hr. / 7-day Technical Support

QP5/200 SM-2 (w/MMX™ Technology).....$2399
Best Buy QP6/200 SM-2 (w/Pentium Pro processor)....$2449

QP6/200 PRO SM-4 $2799

Business lease: $ 98/month

- 200MHz Pentium Pro Processor
- 64MB EDO Memory / 256KB Internal L2 Cache
- 4GB EIDE Mode 4 HD / 3.5" 1.44MB Floppy Drive
- Matrox Millenium 3D w/4MB WRAM
- MAG 17" Digital Monitor (16.1" viewable)
- 33.6 Kbps Fax/Modem w/Voice Mail and Speakerphone
- Toshiba 12X 125ms EIDE CD-ROM Drive *(Upgrade to Panasonic PD Drive for $179)*
- Ensoniq VIVO-90 32-Bit Wavetable Synthesizer
- Altec Lansing ACS-400 Speakers w/ACS-250 subwoofer
- ATX Case
- 104-Key Keyboard MS PS/2 Mouse
- MS Windows '95 With MS PlusQuantex Software Bundle (Including Corel WordPerfect Suite)
- 3-year limited Warranty, 24-hr. / 7-day Technical Support

QP5/166 PRO SM-4 (w/MMX™ Technology).....$2549
QP5/200 PRO SM-4 (w/MMX™ Technology).....$2749

Enough Storage Capacity For Even The Hungriest Applications

With an astounding 4 gigabytes, Quantex brings you the largest EIDE hard drive and has put it in the fastest multimedia system available.

Twelve Times The Speed

Always on the cutting-edge, Quantex systems include Toshiba's 12X EIDE CD-ROM, the fastest CD-ROM drive available, to give you the blazing speed you deserve for all your needs.

Toshiba 12X - A "True 12X" CD-ROM Drive

Surround Sound That Will Shake The Walls

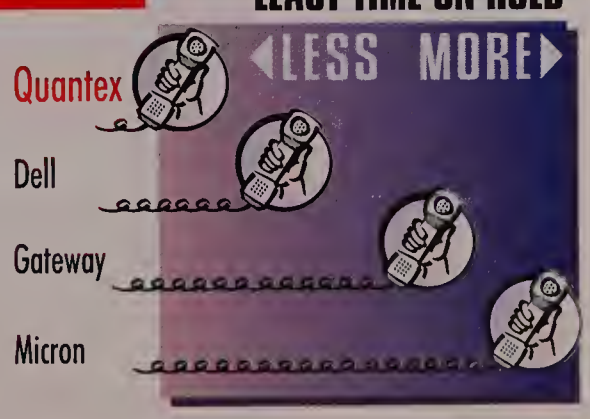
Altec Lansing ACS-400 speakers, complete with it's own woofer box for high-level bass sound, bring you a level of sound that rivals home stereo systems and are available as an upgrade from ACS-45 speakers for only $99.

Your Satisfaction is our #1 Priority

Quantex computers come backed by a 30-day, "no-questions-asked" money-back guarantee and toll- free technical support. Lastly, a three-year warranty ensures your Quantex system will be worry-free well into the future.

Did You Know?

- At Quantex, we're committed to servicing your needs after the sale. *Home PC Magazine (Nov. '96)* readers recently rated us best for *"Least Time On Hold"*.



Taken from the 1996 Home PC Customer Support Survey.

- Quantex consistently offers industry recognized value and quality.

Quantex has been on Windows Magazine's Recommended List **39 times** in 1996.

- Quantex consistently offers award-winning PC solutions. In fact, in 1995 and 1996, Quantex has won 11 *PC World Best Buy awards* and has been on the *PC World Top 20 List* over 40 times! (Best Buy awards: Oct., Nov. and Dec. 1996)

QUANTEX
GOOD CHOICE.℠

1.800.896.4898
www.quantex.com

Great 3D

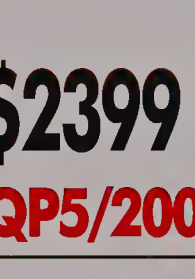
Quantex's value-packed, ***award-winning*** systems include only the best components, from award-winning graphics by Matrox, sound by Altec™ Lansing and Ensoniq™, and even a bundled Internet solution from Epoch Internet Services.

$2399

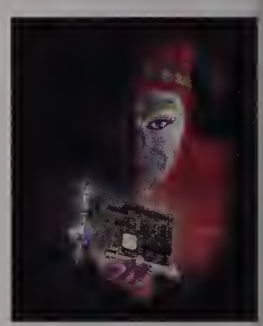
QP5/200 M-4 Business lease:$ 84/month

- 200MHz Pentium Processor
- 32MB EDO Memory / 512KB Pipelined Burst Cache
  (Special Upgrade to 64MB EDO Memory - $199)
- 4GB EIDE Mode 4 Hard Drive
- 3.5" 1.44MB Floppy Drive
- Matrox Mystique 3D w/ 4MB SGRAM
  (Free 3D game included!)
- MAG 17" Digital Monitor (16.1" viewable)
- 33.6 Kbps Fax/Modem w/Voice Mail and Speakerphone
- Toshiba 12X 125ms EIDE CD-ROM Drive
  (Upgrade to the Panasonic PD Drive for $179)
- Ensoniq VIVO-90 32-Bit Wavetable Synthesizer
- Altec Lansing ACS-45 Speakers w/subwoofer
- Mini-Tower Case
- 104-Key Keyboard With MS PS/2 Mouse
- MS Windows '95 With MS Plus
- Quantex Software Bundle (Including Corel WordPerfect Suite)
- 3-year limited Warranty, 24-hr./7-day Technical Support

QP5/133 M-4 ..... $1999
QP5/166 M-4 ..... $2199
QP6/200 M-4 (w/Pentium Pro processor)..... $2549



The Best in 3D Realism and Graphics



The Mystique gives you wickedly fast graphics

With the Matrox Mystique®, the best in graphics and video are yours. Supporting full 2D and 3D acceleration for graphics-intensive applications and full Microsoft Windows 95® compatibility, it's no wonder it won an MVP award from PC Computing and a Best Buy award from PC World. Combining flicker-free refresh rates and Matrox's award-winning graphics engine, the Mystique has the power and speed to put you in the center of the action! See for yourself when you fire up the bundled software, like Psygnosis'™ Destruction Derby II (included FREE!) and blaze along with the fastest, most advanced 3D realism and action you've ever enjoyed. All this can be yours with Quantex.

The Best "Boom" for Your Buck!

Ensoniq's™ Vivo90 provides full Windows 95 compatibility and is 100% plug and play. Using a 32-bit wavetable engine, play more voices on your Quantex than you can hear!

Value Multimedia Series

Graphics....Great Price

Internet Connectivity, Free Web Page, And More

Quantex makes it easy to surf the Web with Epoch's Internet Service, the only Internet Service Provider with nationwide ISDN service. Send and receive Internet e-mail, surf the Web and much more. Put up your own home page using your free 3MB of space on the World Wide Web. Using Quantex's pre-loaded web page templates, you'll be up and running with your own web site in no time. With Quantex, you can become part of the Internet, not just surf it!

A Bundle of Software That Tops Off The Value

To complete an already sweet deal, every Quantex multimedia system comes loaded with the best software. Two of the first software titles using MMX instructions are also included - Pod and Third Dimension.

- Corel WordPerfect Suite
- Corel Internet Mania
- Corel Print House
- Comptons Interactive Encyclopedia
- Comptons Reference Collection
- Comptons Zoo Explorer
- Quicken SE
- Modern Age Books Windows 95 Primer
- BodyWorks 5.0
- Key Master Maps
- Windows 95 with MS Plus
- Epoch Dial Internet Service
- Microsoft Phone 1.0 Telephony Software
- Mecklermedia's Official Internet World Yellow Pages
- One-month trial memberships to AOL, CompuServe and Prodigy

Did You Know?

- Quantex is recognized as a leader in performance and technology. Quantex has been on the cover of Computer Shopper 3 times in 1996 alone! (April, August and December, 1996)
- Quantex provides the best PC's for the small office/home office. Quantex was recently selected as *Home PC Magazine's Lab Winner* in the Home Office Category (December, 1996)
- Quantex PC's always offer top-notch performance and useability. Quantex has received PC Computing magazine's coveted "★★★★" 4-star rating 3 years in a row (1994, 1995, 1996)

QP5/120 M-1 $1399

Business lease: $49/mo.

- 120MHz Pentium Processor
- 16MB EDO Memory / 256KB Pipelined Burst Cache
- 1.6GB EIDE Mode 4 HD / 3.5" 1.44MB Floppy Drive
- 64-bit Virge 3D w/2MB EDO DRAM
- MAG 15" Digital Monitor (14.0" viewable)
- 33.6 Kbps Fax/Modem w/Voice Mail and Speakerphone
- 8X 125ms EIDE CD-ROM Drive
- 16-bit Sound Blaster compatible stereo sound card
- Altec Lansing ACS-90 Speakers
- Mini-Tower Case
- 104-Key Keyboard MS PS/2 Mouse
- MS Windows '95 With MS Plus
- Quantex Software Bundle (Including Corel WordPerfect Suite)
- 3-year limited Warranty, 24-hr./7-day Technical Support

QP5/133 M-1 .....$1449
QP5/166 M-1 .....$1599

QP5/133 M-2 $1599

Business lease: $ 56/mo.

- 133MHz Pentium Processor
- 24MB EDO Memory / 512KB Pipelined Burst Cache
- 2.1GB EIDE Mode 4 HD / 3.5" 1.44MB Floppy Drive
- Matrox Mystique 3D w/ 2MB SGRAM (Free 3D game included!)
- MAG 15" Digital Monitor (14.0" viewable)
- 33.6 Kbps Fax/Modem w/Voice Mail and Speakerphone
- Toshiba 12X 125ms EIDE CD-ROM Drive
  (Upgrade to Panasonic PD Drive for $179)
- Ensoniq VIVO-90 32-Bit Wavetable Synthesizer
- Altec Lansing ACS-90 Speakers
- Mini-Tower Case
- 104-Key Keyboard MS PS/2 Mouse
- MS Windows '95 With MS Plus
- Quantex Software Bundle (Including Corel WordPerfect Suite)
- 3-year limited Warranty, 24-hr./7-day Technical Support

QP5/150 M-2 .....$1649
QP5/166 M-2 .....$1749

QP5/166 M-3 $1999

Business lease: $ 70/mo.

- 166MHz Pentium Processor
- 32MB EDO Memory / 512KB Pipelined Burst Cache
- 2.5GB EIDE Mode 4 HD / 3.5" 1.44MB Floppy Drive
- Matrox Mystique 3D w/ 2MB SGRAM (Free 3D game included!)
- MAG 17" Digital Monitor (16.1" viewable)
- 33.6 Kbps Fax/Modem w/Voice Mail and Speakerphone
- Toshiba 12X 125ms EIDE CD-ROM Drive
  (Upgrade to Panasonic PD Drive for $179)
- Ensoniq VIVO-90 32-Bit Wavetable Synthesizer
- Altec Lansing ACS-90 Speakers
- Mini-Tower Case
- 104-Key Keyboard MS PS/2 Mouse
- MS Windows '95 With MS Plus
- Quantex Software Bundle (Including Corel WordPerfect Suite)
- 3-year limited Warranty, 24-hr./7-day Technical Support

QP5/133 M-3 .....$1849
QP5/200 M-3 .....$2199
QP6/200 M-3 (w/Pentium Pro processor).....$2349

QUANTEX
GOOD CHOICE.℠

1.800.896.4898
www.quantex.com

Peer-to-Peer Power

If you need the best performing systems for high-end graphics, network or Web server functions, Quantex has the systems that you've been waiting for. To protect your valued investment, our systems guarantee high-level expandability and full integration for your future needs.

$1249 Business lease: $44/Mo.

QP5/120 WS-1

- 120MHz Pentium Processor
- 16MB EDO Memory / 256KB Pipelined Burst Cache
- 1.2GB EIDE Mode 4 HD / 3.5" 1.44MB Floppy Drive
- 64-bit Virge 3D w/ 2MB EDO DRAM
- MAG 15" Digital Monitor(14.0" viewable)
- 3COM 3c509 ISA Combo NIC
- 8X EIDE CD-ROM Drive
- Mini-Tower Case
- 104-Key Keyboard With MS PS/2 Mouse
- MS Windows '95 With MS Plus
- 3-year limited Warranty, 24-hr./7-day Tech Support

QP5/133 WS-1.....$1299
QP5/150 WS-1.....$1349
QP5/166 WS 1.....$1449

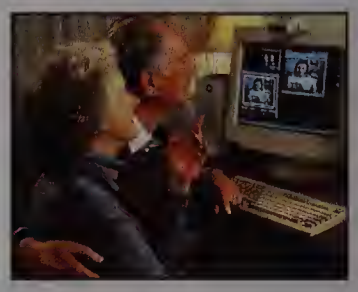
$2499 Business lease: $88/mo.

QP6/200 WS-3

- 200MHz Pentium Pro Processor
- 32MB EDO Memory / 256KB Internal L2 Cache
- 4GB EIDE Mode 4 HD / 3.5" 1.44MB Floppy Drive
- Diamond Stealth 3D 2000 w/ 4MB EDO DRAM
- MAG 17" Digital Monitor (16.1" viewable)
- 3COM 3c905 PCI 10/100 NIC
- Toshiba 12X 125ms EIDE CD-ROM Drive
- ATX Case
- 104-Key Keyboard With MS PS/2 Mouse
- MS Windows NT 4.0 Workstation
- 3-year limited Warranty, 24-hr./7-day Tech Support

QP6/180 WS-3 .....$2399

Quantex VideoPhone System



Video and voice over a single, plain old telephone wire? Yes. And from Quantex, of course.

$1999 Business lease: $ 70/mo.

QP5/166 VM-1

- 166MHz Pentium Processor
- 16MB EDO Memory / 512KB Pipelined Burst Cache
- 2.1GB EIDE Mode 4 HD / 3.5" 1.44MB Floppy Drive
- Diamond Stealth 3D 2000 w/ 4MB EDO DRAM
- MAG 15" Digital Monitor (14.0" viewable)
- Intel DSVD 28.8 Fax/Modem
- Toshiba 12X 125ms EIDE CD-ROM Drive
- Ensoniq VIVO-90 32-Bit Wavetable Synthesizer
- Altec Lansing ACS-45 Speakers w/subwoofer
- Mini-Tower Case
- 104-Key Keyboard With MS PS/2 Mouse
- MS Windows '95 With MS Plus
- Quantex Software Bundle (Including Corel WordPerfect Suite)
- Special VideoPhone and Intercast Bundle
- VideoPhone Camera
- Intel Video Capture Card w/TV Tuner
- 3-year limited Warranty, 24-hr. / 7-day Technical Support

QP5/200 VM-1 .....$2199

QUANTEX
GOOD CHOICE.℠

1.800.896.4898
www.quantex.com

intel inside pentium® PROCESSOR

© 1996 Quantex Microsystems, Inc. All Rights Reserved. 400B Pierce Street, Somerset NJ 08873. Sales Hours: M-F, 9 am - 12 am - Sat., 9 am - 6 pm (ET). All sales are subject to Quantex's limited warranties and terms and conditions of sale. For details on our warranty or money-back guarantee call or write us. MAG monitor covered by manufacturer's 3-year warranty. Three-year limited warranty includes first year, limited parts and labor. Second and third years, parts-only limited warranty. *On-site service may not be available in certain remote areas, and is available only if determined necessary by technicians. Software titles are subject to change and cannot be substituted. Lease payments based on 36-month term. All prices and configurations are subject to change without notice or obligation and do not include shipping or sales tax. All returned items must have a conspicuous RMA number issued by Quantex and be in original packaging. 30-day money-back policy does not include return freight or original shipping/handling charges. Quantex is not responsible for errors in typography or photography. Pentium, Intel, Intercast and the Intel Inside logo are registered trademarks of Intel. Microsoft, and Windows are registered trademarks of Microsoft Corporation. All other company trademarks are tradenames of each respective company.

Canada 1-800-793-4167
Puerto Rico 1-800-793-4185

UNDOCUMENTED SECRETS

101 Tips for Windows 95, NT, and 3.x

BY VALERIE MURRAY RYAN AND BEN MILLER

HOW SATISFIED ARE YOU WITH YOUR VERSION OF WINDOWS? DOES IT DO EVERYTHING IT SHOULD? IS IT ENTIRELY CRASH-FREE? ARE YOU SECURE IN THE KNOWLEDGE THAT AN EVIL OR IGNORANT COWORKER WON'T TRASH YOUR SYSTEM? CAN YOU ALWAYS FIND YOUR FILES?

WE DIDN'T THINK SO. Whether you use the currently popular Windows 95, the old workhorse Windows 3.1, or the super-secure, cutting-edge Windows NT 4.0, you've got an imperfect operating system on your hands. And no, upgrading to the next version—whenever it comes out—won't solve your problems.

We've compiled this collection of tips to help you turn your version of Windows into an easier-to-use, more reliable operating system—without an upgrade. We'll show you how to make Windows warn you when you accidentally press <Caps Lock>, what you can do to keep Windows from crashing, the best ways to free up disk space, and where on the Windows 95 CD-ROM you can find hidden treasures that Microsoft hasn't told you about. Because with all its faults, there's one very nice constant about Windows: You can always find a way to improve it.

ILLUSTRATIONS BY MICHAEL KLEIN

INSIDE

123	Make Windows Your Own
123	Windows 95 in Ten Easy Lessons
124	Twelve Tips for Customizing Windows 95
125	Avoid Disasters
125	Windows 95 Wanna-bes
126	Protect Yourself From Others
127	Seven Better Ways to Do Windows 95
130	Fine Tune Your Hard Drive
134	Find Windows 95's Hidden Treasures
136	Windows NT: Ten Easy Ways to Upgrade

Make Windows Your Own

1 3.x **Sticky Window Settings.** When you customize Program Manager or File Manager, you must save your new settings to make them stick. First, make sure that *Options•Save Settings on Exit* is *not* selected. Then hold down **<Shift>** as you double-click the Control box in the upper left corner of either window. The next time you start Program Manager or File Manager, they'll look the way you want them to.

2 3.x **Icons, Come Back to Me.** If you've accidentally deleted some Program Manager icons, select *File•Run*, type **setup /p** on the command line, and click *OK* to restore all of Program Manager's original icons. You'll then have to delete some duplicates, but it's easier than recreating them from scratch.

3 95 NT **Quick Access for Favorite Files.** Save yourself time by creating a Shortcut to any document you load regularly. Simply right-drag the file onto your desktop and select *Shortcut*.

4 3.x 95 NT **Minimized StartUp.** You can make Windows automatically minimize the applications you have it start up when it loads. In **Windows 3.1**, open the Properties dialog box for the icon, select *Run minimized*, and click *OK*. In **Windows 95** or **NT**, right-click the icon, select *Properties*, click *Shortcut*, and for the *Run* drop-down list box select *Minimized*.

5 95 NT **Desktop Floppy Access.** For quicker access to your floppy drive, place a Shortcut on the desktop. In Explorer, My Computer, or any folder window, right-click the drive, drag it to the desktop, and when you let go, select *Create Shortcut(s) Here*.

6 95 NT **Easy Move to Floppies.** The Send To menu, which you can access by right-clicking a file and selecting *Send To*, lets you copy the file to drive A:. To move files there easily, use Notepad to create a text file called "Floppy move.bat," with the line **@ move %1 a:**, in the c:\windows\sendto folder.

7 3.x 95 **No-Load StartUps.** Want to get to work a little faster? You can prevent the applications in your StartUp folder (StartUp group in Windows 3.*x*) from loading when Windows starts by holding down **<Shift>** as Windows loads.

8 95 NT **Name That Tune.** If your old CD-ROM drive doesn't play audio CDs automatically, you can at least make it play them semiautomatically. Right-click the desktop and select *New•Shortcut*. Enter the command line **c:\windows\cdplayer.exe /play**. Click *Next*, name the Shortcut, and click *Finished*. Now all you need to do is pop in a CD and double-click the Shortcut.

9 95 NT **Making a Good Pointer.** Want to have some fun with your mouse cursors? Select *Start•Control Panel*, double-click *Mouse*, and go to the *Pointers* page. Highlight the pointer you'd like to change, click *Browse*, and double-click a pointer you want to change to. Select *Apply* or *OK* to make your change stick.

10 95 NT **Folder Jumping.** Would you rather type than click? In Explorer, you can jump to any folder or file by typing the first few letters of its name very quickly. Just don't type too slowly, or Windows will jump to a file whose name begins with the second letter you type.

11 3.x 95 NT **Print Screen From Paint.** Want to get a printout from the File Manager or Explorer screen? Press **<PrtSc>**. Then open up Microsoft Paint (Paintbrush in Windows 3.1), select *Edit•Paste*, and print your screen.

12 95 NT **Does <Caps Lock> Ring a Bell?** Have you ever hit the <Caps Lock>, <Scroll Lock>, or <Num Lock> key by mistake? To make those keys sound a warning tone when they're tapped, go to Control Panel, double-click *Accessibility Options*, select *Use ToggleKeys*, and click *OK*. ▶

Windows 95 in Ten Easy Lessons

FEELING LIKE AN ALIEN because you're using a Windows version you're not used to? Here's a quick translation guide for the fastest ways to perform common Windows tasks.

WINDOWS TASK	Windows 3.x	Windows 95 or NT
[13] Minimize your window	Click	Click
[14] Maximize your window	Click	Click
[15] Toggle between Full Screen Window and See Borders	Click	Click
[16] Close open window	Double-click	Click
[17] Cycle through open applications	Press <Alt>-<Tab>, or <Alt>-<Shift>-<Tab> to go backward	Press <Alt>-<Tab>, or <Alt>-<Shift>-<Tab> to go backward; or click the *Taskbar* button
[18] Launch an application	Go to File Manager, select the file, and press <Enter>	Press <Ctrl>-<Esc> and use the arrow keys to select your app
[19] Delete a file	In File Manager, select the file and press <Alt>-D-F	Drag the file to Recycle Bin
[20] View two drives at once	In File Manager, select *Window•New Window* and select a drive	Launch a second copy of Explorer
[21] Exit windows	In Program Manager, press <Alt>-<F4>	Press <Alt>-<F4>, making sure you're not working in an open app
[22] Reboot your system	Press <Ctrl>-<Alt>-<Del>	Press <Ctrl>-<Alt>-<Del> twice

Twelve Tips for Customizing Windows 95

By making some basic adjustments to the Windows 95 interface, you can make it more pleasant to look at and easier to use.

[23] If you tend to work with windows that are taller than they are wide, move the Taskbar to the side of the screen.

[24] Make the Start menu more manageable by displaying small icons. Right-click the *Taskbar*, select *Properties*, and check *Show small icons* in the Start menu.

[25] Move your most-used programs and menus out of the Programs menu and onto the Start menu.

[26] For the fastest keyboard access to menus, rename your menu Shortcuts so that each starts with a unique letter.

[27] Find an attractive picture and turn it into wallpaper. Convert it into a .bmp file and save it in c:\windows. Click the desktop, select *Properties*, click the *Background* tab, and make your selection.

[28] Are Microsoft's default colors hard on your eyes? Right-click the desktop, choose *Properties*, click the *Appearance* tab, and pick something you like. Muted colors are easier to look at.

[29] Add your most common destinations for files to the Send To menu.

[30] Don't like the on-screen font? Right-click the desktop, choose *Properties*, click the *Appearance* tab, select something from the Item list, and adjust the font and type size to your taste.

[31] Position Shortcuts and other desktop icons along the edge of the screen, where you can see them and get to them even when you have an application open.

[32] Think 'My Computer' is a silly name? Change it as you would any other file name.

[33] For quick access, limit Shortcuts to high-priority documents on your desktop.

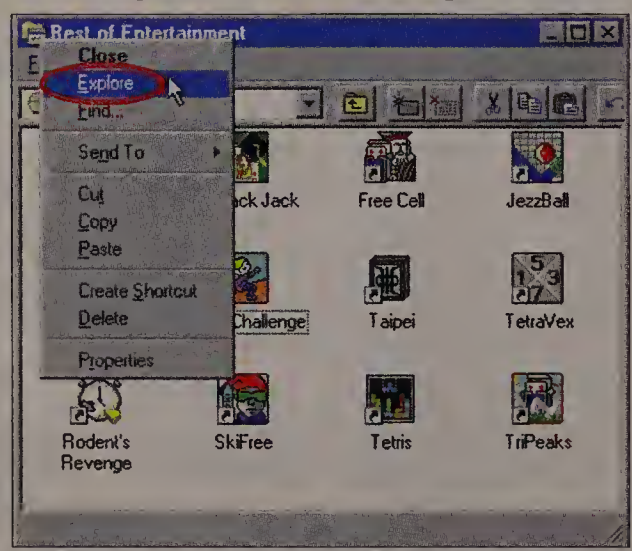
[34] Reduce clutter by storing lower-priority documents in a folder on the desktop.

BY SCOTT DUNN

35 95 NT **Finders, Keepers.** If you use Windows Find to search for the same set of files regularly—for instance, to locate all the files in c:\data saved in the last month—you can save your search criteria for later use. After you've clicked *Find Now* and you have your results, select *File•Save Search*. Windows will create on the desktop a Shortcut to that exact find.

36 95 NT **Explorer View, Please.** Switching an open folder to an Explorer view is an easy and efficient way to browse from folder to folder. To open an Explorer view, right-click the icon in the upper left corner of the window and choose *Explore*.

37 3x 95 NT **The Captain's Log.** You can use Notepad to create a time-stamped log file—a handy tool for logging your voice mail or creating a to-do list. Simply type **.LOG** as the only text in the first line of a Notepad file. Then make your entries, save the file, and close it. Next time you open the file, you'll see that Notepad has added a time-and-date stamp beneath each entry.



WANT TO SEE MORE of your folders? Right-click the icon in the upper left corner and click *Explore*.

38 3x **Dual Boots.** If you're using Windows 95 and NT on the same system, none of the programs you installed under Win 95 will work under NT. The quickest way to fix this is to add your Windows 95 system folder to your NT path. In NT, right-click *My Computer*, choose *Properties*, and click the *Environment* tab. In the System Variables list box, click *Path*. In the Value text box at the bottom of the window, after the last '%' that's already there, add the path to your Windows 95 system folder. Click *OK* to save your changes.

Avoid Disasters

39 95 **No More Crashing, Part 1.** Is your Windows 95 system performing poorly? Your hard disk swap file may not have enough room to do its thing. It needs free disk space equal to at least twice your system's RAM. For example, a system with 16MB of RAM needs 32MB of free disk space.

40 3.x 95 **No More Crashing, Part 2.** Rid your system of old .tmp files. In **Windows 3.1**'s File Manager, locate all .tmp files by selecting *File•Search* and typing in **.tmp**. In **Windows 95**, use *Find*. Sort the files by date, and then delete those without today's date.

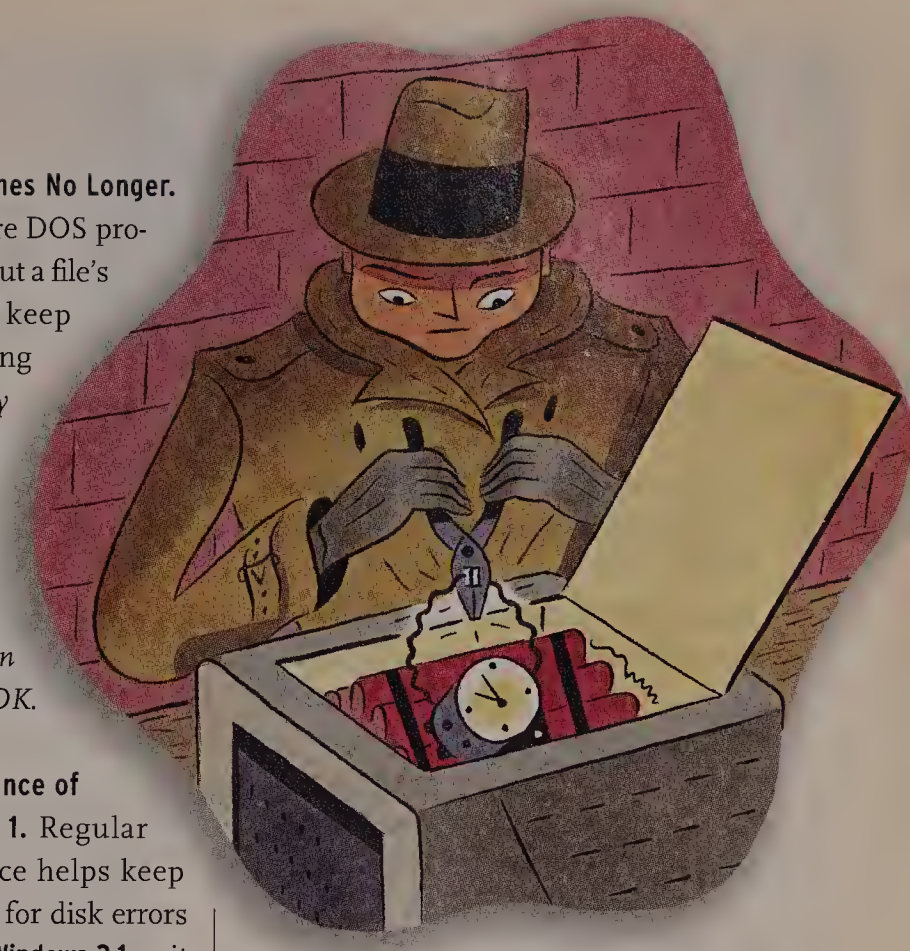
41 95 **No More Crashing, Part 3.** If your system crashes when you open My Computer, Exchange, Control Panel, or Recycle Bin, it could be because you have these three conditions: Your icon spacing is set to a large number or to 0, your video resolution is set to 640 by 480, and you've placed your Taskbar along the right or left edge of the screen and made it larger than the default size.

42 3.x 95 NT **Reboot After a Crash.** No matter what version of Windows you use, always reboot your system after an error crashes an application.

43 3.x 95 NT **Sure You Wanna Delete Me?** Deleting a directory (also called a folder) is not something you should do casually. To protect yourself against mistakes, in File Manager or Explorer select *Options•Confirmation* and make sure 'Directory Delete' is selected. If you want to take extra precautions, also select *File Delete* and *File Replace*.

44 95 **Long File Name Compatibility.** Windows 3.*x* applications generally work fine with Win 95's long file names; not so with utilities, which can truncate long names. If the documentation doesn't explicitly say the utility is compatible with Windows 95, don't use it.

45 95 **Long File Names No Longer.** Some old, obscure DOS programs can wipe out a file's long name. If you must keep such a program, disable long file names. Right-click *My Computer* and select *Properties*, then *Performance*. Click the *File System* button and select the *Troubleshooting* tab. Check *Disable long name preservation for old programs* and click *OK*.



46 3.x 95 NT **An Ounce of Prevention, Part 1.** Regular disk maintenance helps keep your system stable. Check for disk errors at least once a month. In **Windows 3.1**, exit Windows and type **chkdsk /f** at the DOS prompt. (This won't work in a Windows DOS window.) In **Windows 95**, select *Start•Programs•Accessories•System Tools•ScanDisk*. For **NT**, right-click *My Computer*, then highlight and right-click a drive. Choose *Properties*, click *Tools*, and then click *Now*.

47 3.x 95 NT **An Ounce of Prevention, Part 2.** You're more likely to lose files when your hard drive is fragmented, so you should defragment your drive at least once a month. In **Windows 3.1**, exit Windows and type **defrag** from a DOS prompt. In **Windows 95**, you'll find the Disk Defragmenter under ▶

Windows 95 Wanna-bes

NOT PLANNING TO UPGRADE to Windows 95? Don't fret: You can use these utilities to get nifty features similar to Win 95's.

[48] Dashboard 3.0. Win 95's Taskbar sits at the bottom edge of the screen, supplying a button for each active program and open folder. To get the same effect in Windows 3.*x*, use Dashboard 3.0. Dashboard attaches itself to any edge of your screen, hides when not in use, and pops up when your mouse cursor comes near—just like Win 95's Taskbar. You can also switch between printers, view virtual screens, launch apps, and more. Dashboard 3.0, $19.95 list; Starfish Software; 888/782-7347, 800/503-3847 (fax-back); http://www.starfishsoftware.com

READER SERVICE NO. 640

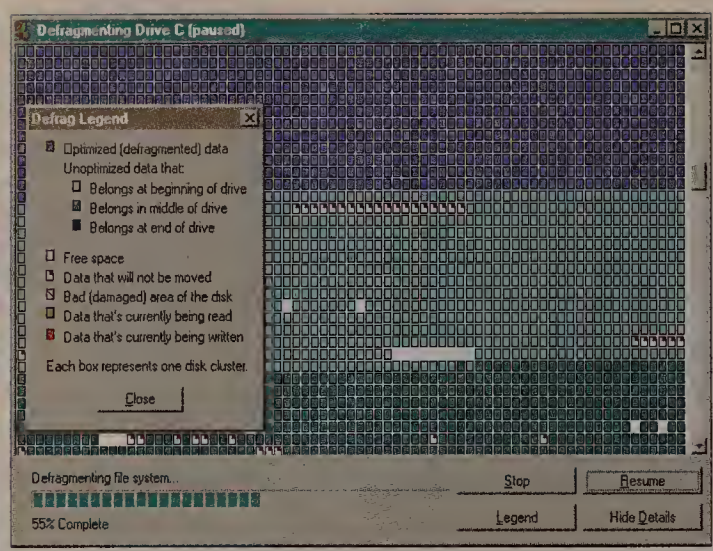
[49] Better Alt-Tab. Win 95's <Alt>-<Tab> shows you all the applications you have loaded, so you can move quickly from one to the next. Windows 3.*x* users can do the same thing with Better Alt-Tab. It lets you see your loaded apps in a frame by just pressing **<Alt>-<Tab>**; then click their icons or press **<Alt>-<Tab>** again to switch between them. You can download a copy from PC World Online as batsetup.exe. Better Alt-Tab, $19.95 registration; Toggle Boolean; 800/242-4775, 713/524-6394; http://www.toggle.com

READER SERVICE NO. 641

[50] Silver Wolf Desktop. Are you hungry for long file names, Shortcuts, and folders? Silver Wolf Desktop—a pretty thorough replacement for Program Manager and File Manager—gives you all these features. You can create folders and desktop shortcuts, and assign file names up to 128 characters long. Not to worry, though: The files still have the traditional DOS 8.3 names—it's just the aliases that are long. Silver Wolf Desktop, $39 registration; Silver Wolf Software; mailbox@silverwolf.com; http://www.silverwolf.com/

READER SERVICE NO. 642

—*Steve Bass*



DEFRAG OR DIE: Defragment your hard disk at least once a month. Windows will run faster and you'll lose fewer files.

Start•Programs•Accessories•System Tools. **Windows NT** doesn't include its own defragger, so you'll have to obtain a third-party NT-specific disk utility that has one.

51 3.x **DOS Boots.** You should always keep a system disk close at hand. If your hard drive has serious problems, you can use the disk to boot your system and hopefully fix the problem. To create one, from File Manager insert a blank floppy into your A: drive, select *Disk•Format*, check *Make System Disk*, and click *OK*.

52 95 **Emergency Startups.** If you can't boot your hard drive, you'll be glad you have a start-up floppy disk handy. To create one, from Control Panel double-click *Add/Remove Programs*. Insert your disk, select the *Startup Disk* tab, and click *Create Disk*.

53 3.x **Create an NT Repair Disk.** You can create an emergency repair disk by going to the System32 folder in your NT folder from Explorer: double-click the *rdisk* icon or type **rdisk.exe** at the Run prompt. This will start the Repair Disk utility, which allows you to either create a new repair disk or update an old one.

54 3.x **Weird NT Behavior.** If you have just made a change to your Windows NT environment and it starts behaving erratically, restart your computer. When you get the message 'Press the Space Bar to use Last Known Good Installation', do so. Your PC will boot to the configuration made before your last change to the NT environment.

55 95 **FAT32 and Defrag Don'ts.** Don't defragment a FAT32 partition with anything but a defragger that supports FAT32. The one that came with your computer, which you'll find at *Start•Programs•Accessories•System Tools•Disk Defragmenter*, will do fine. See "75: What File System Is This?" to see if your computer has a FAT32 partition.

56 3.x **NT Won't Boot for Me.** If Windows NT won't boot properly and you know what file or driver may be causing the problem, you can boot your computer using a DOS system disk. Your computer will boot to a DOS prompt, and as long as you're not using NTFS, you can remove the offending file manually. To find out if you're using NTFS, see "75: What File System Is This?"

57 95 **How Hard Is Your CPU Working?** If you've changed your system's configuration, you can use System Monitor to see the effect of those changes on performance. You can measure the difference in performance between two hard drives to determine if the upgrade was worth it. From the Start menu, select *Programs•Accessories•System Tools•System Monitor.*

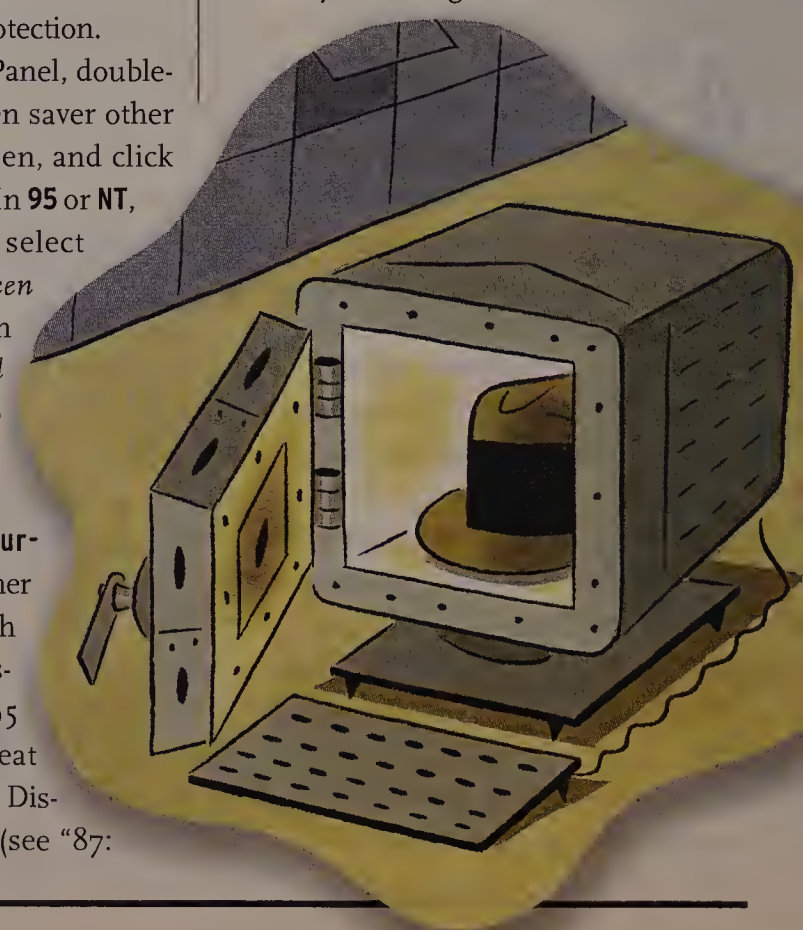
If System Monitor isn't there, you'll need to install it. Put your Windows 95 disc in your CD-ROM drive. When the blue Windows 95 window comes up, click *Add/Remove Programs.* Click the *Windows Setup* tab, double-click *Accessories*, check *System Monitor*, and click *OK* twice.

Protect Yourself From Others

58 3.x 95 NT **Screen-Saver Lockouts.** Password-protecting Windows' screen saver will give you some protection from nosy coworkers. True, in **Windows 3.1** or **95**, all someone has to do to access your hard drive is reboot your system, but at least they won't be able to log on to the network as if they were you. Since **NT** requires a password even to boot, a screen saver offers full protection.

In **Windows 3.1**'s Control Panel, double-click *Desktop*, select a screen saver other than (None) or Blank Screen, and click *Setup* to set your password. In **95** or **NT**, right-click your desktop, select *Properties*, click the *Screen Saver* tab, and select a screen saver. Then check *Password protected* and click *Change* to enter a password.

59 95 **Display for Yourself.** Don't want other folks messing with your wallpaper or screen resolution? The Windows 95 System Policy Editor is great for restricting access to your Display Properties dialog box (see "87: Keep Policy Editor Off Your Hard Drive"). Select *File•Open Registry*, double-click the *Local User* icon, double-click *Control Panel*, and then open the *Display* book. Select *Restrict Display Control Panel* and take your pick of options at the bottom of the dialog box—for example, use *Disable Display Control Panel* to keep people out altogether. Save your changes and exit.



WINDOWS 95 HAS tasty features, but some are only half-baked. These utilities can really cook.

[60] PowerDesk 2.0. ExplorerPlus, part of PowerDesk Utilities 2.0, lets you open multiple windows, create PKZip-compatible archives, and find files fast. There's also a lickety-split file viewer. PowerDesk Utilities 2.0, $39.95 list; Mijenix; 800/645-3649; http://www.mijenix.com

READER SERVICE NO. 643

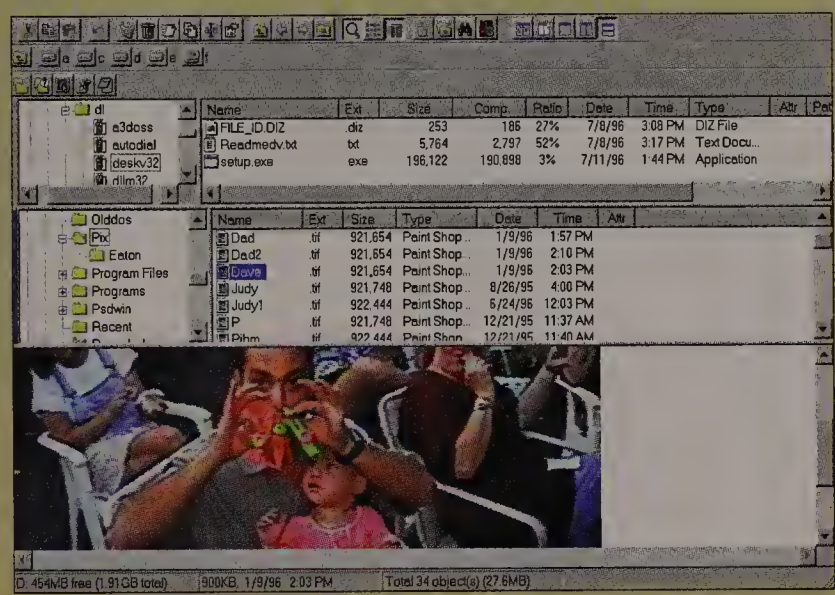
[61] EMail Connection. Tired of Exchange? EMail Connection can handle over 13 online and paging services, including America Online, cc:Mail, and the Internet. One negative—it's a 16-bit program in a 32-bit world. EMail Connection, $49.95 list; ConnectSoft; 800/889-3499; http://www.connectsoft.com

READER SERVICE NO. 644

[62] DUNCE. Want to automatically redial your Internet provider after a busy signal? Forget Windows' Dial-Up Networking; download the Dial-Up Networking Connection Enhancement from PC World Online (dunce2_4.zip). DUNCE, free; Vector Development; vecdev@vecdev.com; http://www.vecdev.com

[63] Cheyenne Backup for Windows 95. Cheyenne offers the power, ease, and safety that Microsoft Backup lacks. And it supports a lot more tape drives, too. Cheyenne Backup, $70 street; Computer Associates; 800/243-9462; sales@cheyenne.com; http://www.cheyenne.com

READER SERVICE NO. 645



POWERDESK'S EXPLORER replacement, ExplorerPlus, lets you display multiple folders and easily peek inside your files.

[64] Paint Shop Pro. Here's a major improvement on Windows' Paint. Browse images, retouch photos, and more. Paint Shop Pro, $69 registration; JASC; 800/622-2793; http://www.jasc.com

READER SERVICE NO. 646

[65] Hide-It. Want to keep a program running but get it off the Taskbar? Hide-It conceals the app until you need it. Hide-It, free; German Salvador; german@bitmailer.net; http://usuarios.bitmailer.com/german/hideit.htm

[66] Power Toys. Microsoft's own collection of cool stuff lets you right-click a folder for a menu of its contents, change color depth on the fly, and make new Shortcuts stop saying 'Shortcut to'. Windows 95 Power Toys, free; Microsoft; http://www.microsoft.com/windows/software.htm

—*S. B.*

67 95 Get Your Hands Off My Registry.

Playing with the Registry is an invitation to disaster, and the Windows 95 System Policy Editor can keep people out of it (see "87: Keep Policy Editor Off Your Hard Drive"). To lock people out of your Registry, select *File•Open Registry*, double-click the *Local User* icon, and double-click *System* and then *Restrictions*. Select *Disable Registry Editing Tools*. Save your changes and exit.

68 95 NT Conceal Your Selected Past, Part 1.

The Start menu's Documents option gives anyone walking by a list of your most recently used documents. For a little more privacy, you could, for example, remove all references to files with names that begin with 'pri'. You can do this by selecting *Start•Run* and then entering the command **move c:\windows\recent\pri*.* c:\recycled**.

Note: This trick works only with file names, not extensions. Since the Start menu's folder contains only Shortcuts that have the .lnk extension, you can't remove all files with .doc extensions from the folder, for instance.

69 95 NT Conceal Your Selected Past, Part 2.

If you regularly want to remove files with names that begin with, say, 'pri' from the Start menu's Documents list, create the following two-line batch file (a plain text file with the extension .bat) and save it on your desktop or in the Start menu so you can easily run it to cover up your past.

```
move c:\windows\recent\pri*.* c:\recycled
@cls
```

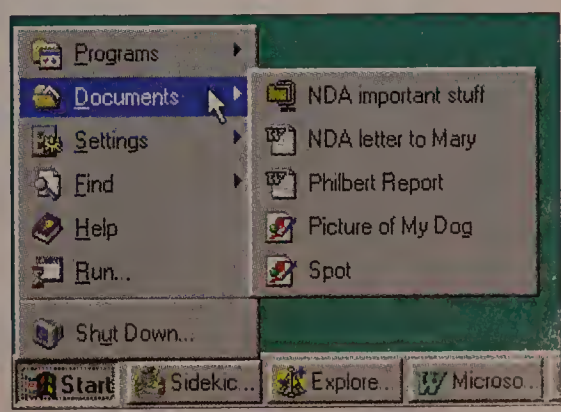
The path may vary if your Windows folder isn't in c:\windows.

70 95 NT Conceal Your Entire Past.

To erase the Start menu's Documents list entirely, at least until you next create or save a file, right-click an empty spot on the Taskbar, select *Properties*, click the *Start Menu Programs* tab, click *Clear*, and then click *OK*.

71 3x Lock Those Files.

By default, Windows NT gives full access to anyone who can log on to your computer. But if you're using NTFS (see "75: What File System Is This?"), you can prevent other people from accessing files and folders that you created yourself—and if you're logged on as the administrator, you don't even need to be their creator. Right-click the file or folder that you want to set access privileges for and choose *Properties*. Click the *Security* tab and ▶



DON'T WANT TO SHOW which files you've been working on? Hide this list by deleting the file names from your Documents menu.

intel inside pentium PROCESSOR

The ultra-value Pentium® processor-based PC.

- Intel® 100, 120 or 133 MHz Pentium processor
- 8 or 16MB RAM standard, expandable to 192MB
- EDO RAM
- 256KB burst synchronous cache
- 1080MB** high-performance Enhanced-IDE hard drive
- 64-bit PCI integrated graphics accelerator with 1 or 2MB video RAM software selectable
- Flash BIOS for easy upgrade
- Windows® 95
- Preloaded HP DMI Desktop Management Interface
- Free three-year limited warranty for parts and labor[1]

from $1,110*

HP Vectra VE

Leading Pentium processor/PCI performance at an affordable price.

- Intel 100, 120, 133, 150, 166 or 200 MHz Pentium processor
- Desktop and minitower packages
- 256KB burst synchronous cache
- 8–16MB EDO RAM, expandable to 128MB
- PCI/ISA architecture
- 1280MB** high-performance Enhanced-IDE hard drive
- PCI integrated graphics accelerator and 1MB DRAM standard, upgradable to 2MB or Matrox Millenium PCI graphics card with 3D acceleration and 2MB WRAM, upgradable to 8MB
- Flash BIOS for easy upgrade
- Full plug-and-play capability
- Windows 95
- Preloaded HP DMI Desktop Management Interface
- Free three-year limited warranty for parts and labor[1]

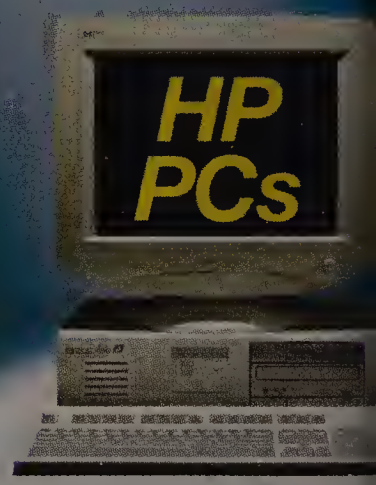
from $1,316*

HP Vectra VL

The most powerful value PC for advanced users and 32-bit applications.

- Intel Pentium Pro 180 or 200 MHz processor with 256KB integrated cache
- Choice of desktop or minitower
- 16 or 32MB EDO RAM, expandable to 192MB
- PCI/ISA system architecture
- 64-bit PCI integrated graphic accelerator or Matrox Millenium graphics card on minitowers
- 1.2 or 2.5GB Enhanced-IDE hard drive
- 3 available PCI slots for maximum expansion
- 8X CD-ROM on most models
- Flash BIOS for easy upgrade
- Windows 95 or Windows NT® 3.51 with free upgrade to Windows NT 4.0
- Windows 95 and Windows NT Soft Power Down
- Free three-year limited warranty for parts and labor[1]

from $2,419*



HP Vectra VA

[1]In Canada, call 1-800-387-3867. *Average U.S. street price. Monitor not included. **Other capacities available. HP Vectra PCs come with MS-DOS® 6.2 and MS Windows for Workgroups 3.11; or Microsoft® Windows 95 or Windows NT included. [1]First year, on-site, 24-hour, next-day service. Second and third year, return to dealer. Microsoft, MS-DOS, Windows and Windows NT are U.S. registered trademarks of Microsoft Corporation. Pentium and the Intel Inside logo are registered trademarks of Intel Corporation. ©1996 Hewlett Packard Company PPG430

The best combination of performance, manageability and networking.

- Intel Pentium Pro 180 or 200 MHz processor with 256KB integrated cache
- 16 or 32MB EDO RAM, expandable to 192MB
- PCI/ISA system architecture
- High-performance Matrox Millenium PCI graphics card with 2MB upgradable to 4 and 8MB
- 1.2 or 2.5GB Enhanced-IDE hard drive
- Integrated audio with ergonomic volume control and built-in speaker
- 8X CD-ROM
- Integrated Ethernet 10Base-T controller
- LAN remote Power ON
- Flash BIOS for easy upgrade
- Windows NT 3.51 with free upgrade to Windows NT 4.0
- Windows NT Soft Power Down
- Free three-year limited warranty for parts and labor[1]

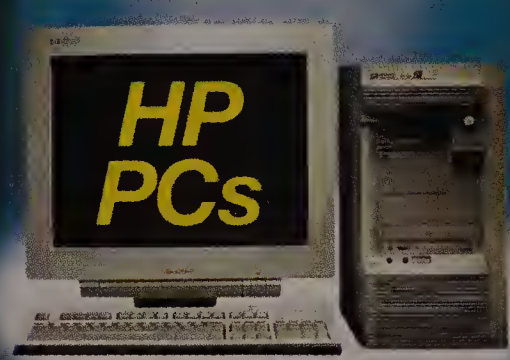
from $2,696*

HP Vectra XA

The ultimate PC.

- Intel Pentium Pro 180 or 200 MHz processor with 256KB integrated cache
- Supports dual processing with secondary Pentium Pro processor socket
- 128-bit high-performance memory architecture
- 32MB ECC DIMM memory standard, expandable to 512MB with 8 DIMM memory expansion slots
- PCI integrated Ultra SCSI Fast 20 interface with 20MB/s throughput
- 2GB** SCSI-2 high-performance hard drive
- PCI Matrox Millenium graphics card with 3D acceleration and 2MB WRAM
- 7 mass storage shelves (5 front accessible)
- 6 expansion slots: 3 PCI, 1 PCI/ISA combo and 2 ISA
- 10Bt/100Bt AnyLAN selectable PCI NIC with up to 100 Mb/s throughput
- Integrated 16-bit audio and 8X CD-ROM
- Windows NT 3.51 with free upgrade to Windows NT 4.0
- Free three-year limited warranty for parts and labor[1]

from $4,354*



HP Vectra XU

IBM and Compaq can't be happy.

For more information or the name of your nearest HP reseller, call 1-800-322-HPPC, Ext. 1704.[1] Or visit us at http://www.hp.com/go/vectra.

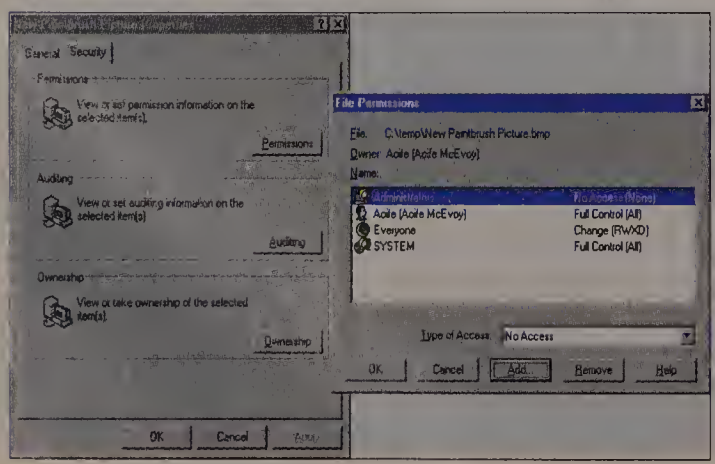
HEWLETT® PACKARD

then click *Permissions*. To remove a user, select a name and click *Remove*. To add groups of users (for example, by department), click *Add* and select from the list provided.

72 3.x **Select Your Coworkers.** By default, when you select users to give them access to your files (see "71: Lock Those Files"), NT will show you only groups of users. To add individual names, in the Add Users and Groups dialog box select a group and click *Show Users*. The names of everyone in that group will appear at the bottom of the Names list. Double-click a name to put it on the Add list.

73 3.x **What Kind of Access?** It's not just a matter of granting people access to your files—there are also different *degrees* of access (full, read-only, and so on). In the Permissions dialog box, click a user or group of users, then select a new access level from the Type of Access menu.

74 3.x **Who's Been Playing With My Files?** If you're going out of town and someone else will be using your computer, you may want to know which files they go through. If you can log on to your PC as the administrator, you can set up an audit trail for actions like deleting, executing, reading, writing, and changing access privileges. Right-click the file or folder you want to audit and choose *Properties*. Click *Auditing*, then click *Add*, and select the names of the people who will be accessing your PC. Choose the actions to audit from the list provided, and indicate whether you want to monitor success and/or failure for each event.



THANKS FOR SHARING: Windows NT lets you control who can and cannot access your files across a network.

Fine Tune Your Hard Drive

75 95 NT **What File System Is This?** Both NT and newer versions of Windows 95 provide modern file systems in addition to the more antiquated DOS-based FAT, which both of them also support. NT has been offering the NT File System (NTFS) for years, while many new Windows 95 computers come with FAT32. Each file system has incompatibility issues, and it's a good idea to know which one your PC uses.

To find out, open *My Computer*, right-click *C:*, and select *Properties*. If you see the words 'Type: Local Disk (FAT32)' or 'File system: NTFS', your hard drive has been formatted with a modern file system.

76 3.x **Think Before You Convert.** NTFS is a robust and secure disk operating environment. But no operating system other than NT can read an NTFS partition, and once you've converted a FAT or FAT32 partition to NTFS, there's no going back. So think hard before you convert. If your system has only one hard disk partition and you want to dual-boot, stay with the old FAT system.

77 3.x **Conversion and Translation.** When you convert a hard drive partition to NTFS, you may encounter some problems translating unusual 8.3 file names—such as those with a tilde (~)—from FAT to NTFS. To counter this, enter the command **convert *drive*: /fs:ntfs/nametable:convfile.log** at a DOS prompt. This will automatically create a name-translation table in the boot sector of the drive or partition before you convert. NTFS will use this translation table to resolve any difficulties it has translating file names.

78 95 **Longest Battery Life.** You can conserve battery power on a notebook PC by setting Windows 95 to do a minimal amount of disk caching. Right-click *My Computer* and select *Properties*. From the *Performance* tab, click *File System*. On the *Hard Disk* tab, make sure *Mobile or docking system* is selected under 'Typical role of this machine'. Your system won't be as fast as it was before, but it will last longer on a battery charge.

79 3.x 95 NT **Data Central, Part 1.** For easy backups, keep all of your data files in a single directory (folder). To organize your data, put it in subdirectories within that directory, by project or whatever other division makes sense to you.

80 3.x 95 NT **Data Central, Part 2.** Once you're keeping your data in a single directory (folder), tell your applications that's the default location where they should save new files. How you do this varies from application to application, and it may take a bit of looking to figure it out. For instance, in Microsoft Word for Windows, select *Tools•Options*, click the *File Locations* tab, and modify the *Documents* option. In Excel, it's again *Tools•Options*, but you click the *General* tab and enter the correct path into the Default File Location field. In Lotus Approach, you select *File•User Setup•Approach Preferences*, click the *General* tab, click *Default Directories*, and fill in the information. ▶

Only One Company Can Give You **Removable Storage** This Rugged and Reliable. **Fujitsu.**

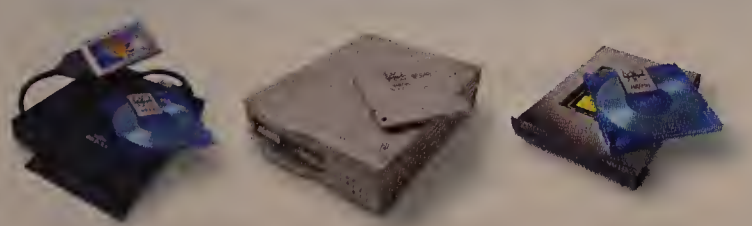
On location with the DynaMO® 230 and the DynaMO 640. When rock climbing, you'd never compromise with the tools you use. The same idea applies to backing up, transferring and transporting critical files. • That's where the DynaMO 230 and the DynaMO 640 come into the picture. They're the perfect tools for designers who need to transport and transfer graphics files, for sales organizations that need to store multimedia presentations on a single disk, and for government agencies that need to archive records. • In fact, you won't find removable storage that's more rugged or reliable. A single MO disk has a life span of over 10 million writes and over 100 million reads. • Which leads us to Fujitsu's customer support policy. No Excuses™. More than just a slogan, it's our commitment to provide you with the ultimate in service, including technical support at no charge. Which is just another way of saying, Fujitsu has set a new standard of excellence in removable storage. • The DynaMO 230 and DynaMO 640. When you add it all up, everything that matters is DynaMO driven. • DynaMO 230 and the DynaMO 640 are available wherever quality removable storage drives are sold. For more information, call 1-800-626-4686, ext. 3211. Or discover DynaMO on our website at http://www.fcpa.com.

DynaMO 640

- 640MB per disk
- Backwards compatible with 540MB, 230MB and 128MB media
- Internal or external versions for desktop systems
- Interface: SCSI-2

DynaMO 230

- 230MB per disk
- Backwards compatible with 128MB media
- Internal or external versions available for portable and desktop systems



You're looking at the most reliable ways to backup, transport and transfer data ever devised—the DynaMO Portable PC Card, DynaMO 640 and DynaMO 230. The perfect solutions for people who want it all: price, performance and dependability.

FUJITSU

For your chance to win a vehicle as rugged as our drives, discover our website at www.fcpa.com

© 1997 Fujitsu Computer Products of America, Inc. All rights reserved. DynaMO is a registered trademark and No Excuses is a trademark of Fujitsu Computer Products of America, Inc. All trademarks are property of their respective companies.

No purchase necessary. Sweepstakes is open to legal US residents 18 years and older. To enter Fujitsu Land Rover Discovery General Sweepstakes, visit the Fujitsu Computer Products of America website at http://www.fcpa.com. To enter by mail, hand print your name and complete address (including zip code) plus day time and evening telephone numbers on a plain piece of 3" x 5" paper. Mail your entry in a hand addressed #10 envelope with first class postage affixed to: Fujitsu Land Rover Discovery General Sweepstakes, PO Box 18829, Irvine, CA 92623-8829. Limit one entry per person. No mechanically reproduced entries permitted. Entries must be received no later than May 12, 1997. Random drawing will be held on or about June 10, 1997. One Grand Prize: 1997 Land Rover Discovery SD, approximate retail value $34,000. All taxes (except first year vehicle registration) are the sole responsibility of the winner. Odds of winning depend on the number of eligible entries received. This sweepstakes subject to Official Rules. For a copy of Official Rules write to: Fujitsu Land Rover Discovery General Sweepstakes Rules, PO Box 18829, Irvine, CA 92623-8829. Void where prohibited by law. The vehicle awarded may differ in color and equipment from vehicle shown.

Circle 89 on reader service card

There's A Compaq For Just About Everyone.

Whether you're looking for the ultimate in performance, flexibility or economy, there's a Compaq® notebook that's just right for you.

Take the Compaq LTE® 5300, for example. It starts with a powerful 133MHz Pentium® Processor. And has a MultiBay™ design that lets you add optional interchangeable devices — like a second hard drive (up to 2.16GB) or a 6X CD-ROM drive — so you can mix and match capabilities anywhere.

If you'd like even more flexibility, there's the Armada® 4120. It transforms from a super-portable slimline notebook (with a 120MHz Pentium Processor, of course) to a multimedia notebook with an optional, and detachable, CD-ROM base. And, like the LTE 5300, it can work even harder when you team it up with its optional Convenience Base.

And the Armada 1130 lets you hit the road with a 120MHz Pentium Processor, at an incredibly affordable price. With Compaq, the choice is yours. (So is the call.)

COMPAQ DirectPlus®

WHICH ONE'S FOR YOU?

	LTE 5300	Armada 4120	Armada 1130
Processor	133MHz Pentium®	120MHz Pentium	120MHz Pentium
Standard Memory	16MB	16MB	16MB EDO
Memory Expandable to	80MB	48MB	48MB
Hard Drive	1.35GB Removable/ Multiple Drive Support	1.08GB	1.08GB
Battery	NiMH or Li-Ion (up to 2 simul.)	Li-Ion (up to 3 simul. with MCD Unit)	Enhanced NiMH
Cache	256K L2	256K L2	N/A
Video Graphics	32-Bit PCI Local Bus	32-Bit PCI Local Bus	32-Bit PCI Local Bus
Video Memory	1MB	1MB	1MB
CD-ROM Drive	Optional	Optional	N/A
Display	12.1" CTFT SVGA	11.3" CSTN SVGA	10.4" CSTN SVGA
Other Features	• Optional 6X CD-ROM • Standard 16-Bit Stereo Sound, MIDI and Wav. • Optional Hardware-Based MPEG • Optional MultiBay Expansion Base with 16-Bit ISA Slot • Mobile Intelligent Manageability	• Optional Mobile CD Unit with 8X CD-ROM, 16-Bit Stereo Sound, MIDI/ Joystick Port • Integrated Audio and NTSC/PAL Support, Zoom Video • MVA (software-based) • Optional Convenience Base with/without Ethernet	• Two PCMCIA Type II Slots (or 1 Type III) • MultiLock Security Features • Tilting, Full-Function Keyboard • Integrated 19mm Optical Trackball • AC Adapter • Just 6.25 lbs.
Software Pre-installed	Choice of Windows® 95 or Windows 3.1	Windows 95	Windows 95, Astound and MS-Works®
Limited Warranty†	3-Year	3-Year	1-Year**
Price*	**$4,399***	**$2,599***	**$1,699***

TO ORDER, CALL:

1-800-888-2569

M-F 7-7; Sat. 9-3 CST. Ask for our free catalog.

1-800-308-7774

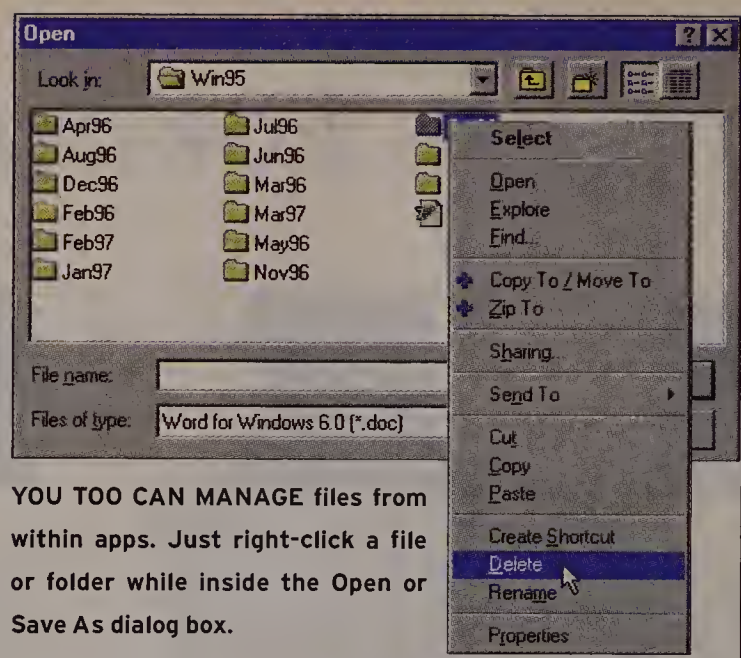
For your nearest Compaq Authorized Reseller.

*All prices shown are Compaq DirectPlus prices. Reseller prices may vary. †The Compaq Armada 4120 and LTE 5300 are covered by a Three-Year Worldwide Limited Warranty. The Armada 1130 is covered by a One-Year Worldwide Limited Warranty with pick-up/carry-in service. **Two-year extension available. Ask for details. Battery packs and certain options are covered by a One-Year Warranty. Offer available in the U.S. only. Certain restrictions and exclusions apply. © 1997 Compaq Computer Corporation. All rights reserved. Compaq and the Compaq Logo registered U.S. Patent and Trademark Office. DirectPlus is a registered service mark, LTE is a registered trademark, and Armada and MultiBay are trademarks of Compaq Computer Corporation. Windows and MS Works are registered trademarks of Microsoft Corporation. The Intel Inside Logo and Pentium are registered trademarks and the Pentium Processor Logo is a trademark of Intel Corporation. Products, prices and programs are subject to change without notice. Other products are trademarks or registered trademarks of their respective companies.

Circle 61 on reader service card

81 3.x 95 NT **Data Central, Part 3.** If an application doesn't offer a way to change its working directory (folder), try telling Windows to open it where you want it to save files. In **Windows 3.1**, switch to Program Manager, select the application, and press **<Alt>-<Enter>**. Type in a new working directory, such as **c:\data**, and click *OK*.

In **Windows 95** or **NT**, right-click the *Start* button and select *Explorer*, then find the Shortcut to the application—if the Shortcut is on the desktop, you don't have to open Explorer. Right-click the Shortcut, select *Properties*, go to the *Shortcut* tab, and type the desired working folder in the 'Start in' field.



YOU TOO CAN MANAGE files from within apps. Just right-click a file or folder while inside the Open or Save As dialog box.

82 95 NT **Explorerless File Management.** You can manage files right inside your applications. The Save As and Open dialog boxes of Windows 95–savvy applications offer full drag-and-drop capabilities and the same right-click menu you get in Explorer or a standard folder window.

83 95 **Seven Megabytes Richer.** Looking to free up some disk space? Check your Windows\Help folder for AVI files—you could have as much as 7MB of them left over from Windows' tutorial. Unless you're using Windows 95 for the first time, you don't need them.

84 95 NT **Eliminate Confusion With Quotes.** When using a long file name at the DOS prompt, where it could be confused with a string of parameters, surround the name in quotes, as in **copy "Letter to Garcia About Smith" a:**.

Find Windows 95's Hidden Treasures

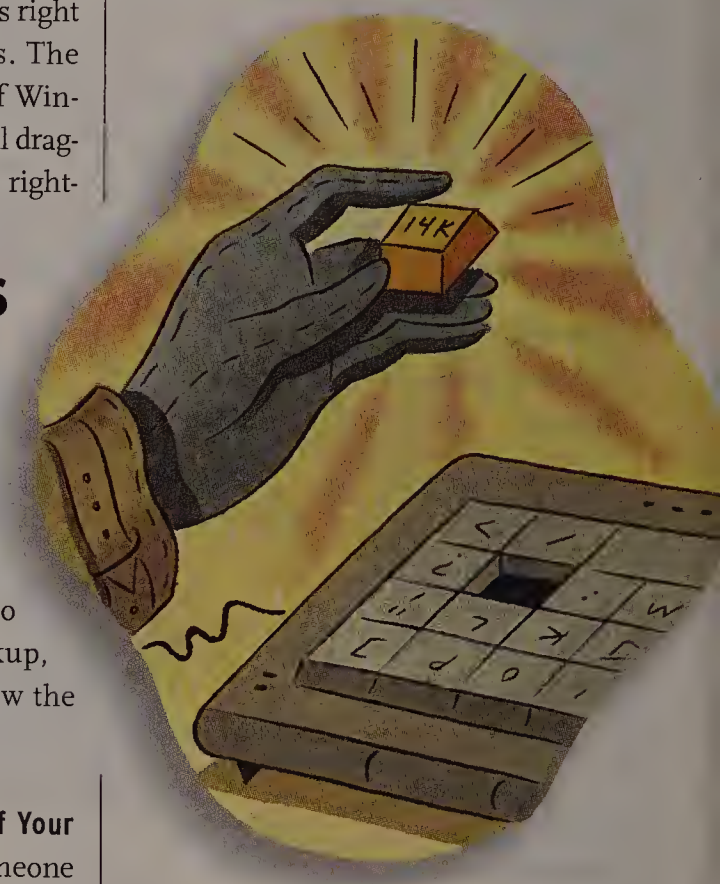
85 95 **Good Storage With ClipBook.** There's some amazing, little-known stuff on the Windows 95 CD-ROM—for instance, a better version of Clipboard. When you copy or cut something to the usual Clipboard, you lose the last thing that was there. Few people know it, but Windows 95 also has a Clip*Book* where you can save clippings and reuse them. To install it, insert the Windows 95 CD-ROM, and in the resulting window select *Add/Remove Software*. Go to the *Windows Setup* tab, click *Have Disk*, click *Browse*, and navigate your way to *d*:\Other\Clipbook (where *d* is your CD-ROM drive letter). With the clipbook.inf file the only thing in the file name box, click *OK* twice. Check *ClipBook Viewer*, then click *Install*. You'll now be able to open the program by selecting *Start•Programs•Accessories•ClipBook Viewer*.

86 95 **Back Up Your Registry.** All sorts of installation programs mess with the Windows Registry, so it's a good idea to make regular backup copies of the two files, user.dat and system.dat. Unfortunately, you can't use Explorer or DOS to copy these files.

Buried on the Windows 95 installation CD-ROM is a program that lets you make up to nine backups of your Registry. Just copy Cfgback.exe from the CD-ROM's \Other\Misc\Cfgback folder to c:\windows, and then copy the Cfgback.hlp file to c:\windows\help. To make a backup, double-click *Cfgback.exe* and follow the detailed instructions.

87 95 **Keep Policy Editor Off Your Hard Drive.** Don't want someone else changing your Windows environment? Use the System Policy Editor, located on the Win 95 installation CD-ROM. Don't put the Policy Editor on your own hard drive or you'll make it too easy for others to change your configuration. When you need it, pop in the CD-ROM, select *Start•Run*, and run the command **d:\admin\apptools\poledit\poledit.exe**, where *d* is your CD-ROM drive. See "59: Display for Yourself" and "67: Get Your Hands Off My Registry" for examples of how to use this tool.

88 95 **Emergency Recovery Utility, Part 1.** There's a hidden program on the Windows 95 CD-ROM for creating a emergency boot disk that can restore your system to the way you've configured it. Before running the program, format a floppy, making sure to check the *Copy system files* option in the Format dialog box. Then place the CD-ROM in your drive, browse to the *d*:\other\misc\eru folder (where *d* is your CD-ROM drive), and double-click *eru.exe*. Just follow the directions from there. In case of disaster, reboot your system with the ERU-created floppy, and it will automatically restore some of your Windows 95 settings.



89 95 **Emergency Recovery Utility, Part 2.** If you use the Emergency Recovery Utility found on the Windows 95 CD-ROM to create an emergency boot disk, be aware that some of ▶

Guess What The British, French, And Japanese Know About Graphics And Imaging That You Don't?

THE U.K.'S BEST-SELLER.
They know performance when they see - and use - it.

PICTURE PERFECT IN FRANCE.
The choice of one of France's largest multimedia production companies (that's nothing to sniff at).

ONE OF JAPAN'S TOP THREE.
iiyama is consistently among the top three in monitor sales for all of Japan.

A WORLDWIDE FAVORITE.
Engineers at one of Japan's largest computer product companies look at the big picture on iiyama monitors.

They Look Much Better On An iiyama Pro 21"

Model/ Viewable Area	Dot Pitch Horiz. Scan	Max. Horiz. Scan Rate	Refresh Rate	ESP
21" MT-9021E (19.5" vis)	.30mm Aperture Grille	94 kHz	76 Hz (1600 x 1200)	$1,620
21" MF-8221E (19.5" vis)	.27mm Flat Square	94 kHz	76 Hz (1600 x 1200)	$1,585
17" MT-9017E (16" vis)	.25mm Aperture Grille	92 kHz	72 Hz (1600 x 1200)	$799
17" MF-8617E (15.75" vis)	.26mm Flat Square	86 kHz	69 Hz (1600 x 1200)	$690
15" MF-8515F (13.9" vis)	.28mm Flat Square	66 kHz	80 Hz (1024 x 768)	$374

No matter where you go in the world, there's a universal word for dazzling clarity, blazing color, and precision performance: *iiyama* – makers of international best-selling monitors for graphics, imaging and desktop publishing.

Whether you choose our spectacular VisionMaster Pro 21", with its Diamondtron® CRT technology, or any of our other popular 15" and 17" models, count on unequaled clarity, high refresh rates, on-screen precision controls, and countless other high-end features normally found on much more expensive monitors.

Discover the superior features, service, and 3-year warranty that helped put *iiyama* monitors on the map – in North America and around the world. Your local authorized dealer has a complete line of *iiyama* monitors – stop by and see the difference for yourself.

Windows EXPERTS' PICK · Reseller News Editors' Choice · PC MAGAZINE EDITORS' CHOICE · MW EDITORS' CHOICE · PC WORLD BEST BUY January 1997 · colorific

iiyama®

West: 1-800-594-7480 • East: 1-800-313-4335
www.iiyama.com

VisionMaster is a trademark of iiyama Corporation. Diamondtron is a registered trademark of Mitsubishi Corporation. Copyright iiyama, 1997

BAL

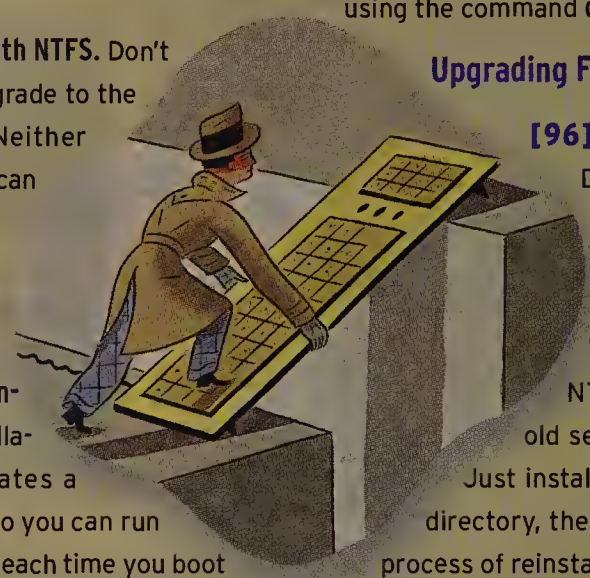
Circle 108 on reader service card

Windows NT: Ten Easy Ways to Upgrade

Upgrading From Windows 3.1 or 95

[90] To Avoid Stress, Decompress. Windows NT can't read drives compressed with DoubleSpace, DriveSpace, or other utilities. If you need to see those drives when running NT, uncompress them before you install it.

[91] Home Alone With NTFS. Don't be in a hurry to upgrade to the NT File System: Neither Windows 3.1 nor 95 can read NTFS drives.



Upgrading From Windows 3.1

[92] Install Over Windows 3.1. NT's installation normally creates a dual-boot system, so you can run either NT or Win 3.1 each time you boot up. To carry over your current Win 3.1 desktop settings, drivers, and apps into NT, you must install NT to your existing Windows 3.1 directory. You must then create a new user account to import your old settings into NT.

[93] Create a New User Account. For NT to read your Windows 3.1 settings, you must create a new user account. Go to the Start menu and select *Programs•Administrative Tools (Common)•User Manager*, then *User•New User*. Fill in the data fields, create your password, click *OK*, and then shut down and log back in. After NT has asked you to change your password and confirm some settings, you'll find that your new desktop has some familiar features.

[94] Keep 3.1 and NT in Sync. In a dual-boot system, NT won't know about new apps installed in Win 3.1. To import recent changes from 3.1, edit NT's Registry.

Choose *Start•Run*, and enter **regedt32** in the Open field. Select the *HKEY_LOCAL_MACHINE* window, expand the *Software* branch, select the *Windows 3.1 Migration Status* branch, and press **<Del>**. Repeat the process in the *HKEY_CURRENT_USER* window, then exit the editor. Next time you log in to NT, it will import your Windows 3.1 configuration anew.

[95] Make a Clean Break. Are you absolutely sure you'll never, ever use DOS or Windows 3.1 again? (Remember, almost 25 percent of Win 3.1-compatible hardware and software won't run under NT.) If so, install NT to a different directory, then delete the Windows 3.1 directory and subdirectories using the command **deltree\windows.**

Upgrading From Windows 95

[96] Let the Past Go. Don't waste one precious minute trying to install Windows NT over Windows 95 or get NT to pick up your old settings. No can do. Just install NT to a separate directory, then start the painful process of reinstalling your apps.

[97] Eschew the FAT32. If you recently bought a new PC, it's probably using the FAT32 file system (see "75: What File System Is This?"). Unfortunately, NT won't install on or convert FAT32 disk partitions. Your only remedy: Back up the drive, delete the FAT32 partition, create and format a FAT16 partition in its place, restore the drive, and proceed with the NT installation.

[98] Beware Odd Partitions. If you try to install NT and get a message that the target partition type is unknown, Windows 95's fdisk program has probably given you a OE or OF 16-bit FAT partition. Before you install NT, download and install the patch that prevents Win 95 from creating unsupported partition types in the first place; you'll find it at http://www.microsoft.com/windows/software/dskts.htm. You then must back up the drive, delete the FAT partition, re-create it, format it, restore the drive, and then proceed with installing NT.

[99] Good-bye '95. To get rid of Windows 95 forever, delete the entire Windows 95 directory using the DOS command **deltree\windows.** But you may find that some of your current hardware and software is not supported by NT. *–Scott Spanbauer*

the configuration files can be huge, making it impossible to fit them all on a floppy (and ERU can't handle multiple floppies). When ERU shows the files it will back up, click *Custom* to see the files it will skip. You can choose to skip other files, or you can make a note of the ones not being copied and back them up manually.

100 95 **Windows 95 Resource Kit.** If you need the inside scoop on Win 95's innards, take a look at the Windows 95 Resource Kit, hidden on the installation CD-ROM. There you'll find information on everything from configuring a dial-up server to how device drivers work. To read this help file, place the CD-ROM in your drive, browse to the *d*:\admin\reskit\helpfile folder (where *d* is your CD-ROM drive letter), and double-click *win95rk.hlp*. To make the Resource Kit a permanent part of your hard drive, copy win95rk.hlp and win95rk.cnt to your c:\windows\help folder, then create a Shortcut to win95rk.hlp.

101 95 **Enhanced Printer Troubleshooter.** Having trouble with your printer? The Windows 95 installation CD-ROM contains a printer troubleshooting program that may be able to help. Place the CD-ROM in your drive, browse to the *d*:\other\misc\epts folder (where *d* is your CD-ROM drive letter), and double-click *epts.exe*. The program will ask you what kind of problem you're having, then continue to ask questions and offer solutions until you solve your problem or give up.

Want access to even more Windows tips? The Internet and online services are full of them, and we've compiled a list of the best online spots for Windows information. Point your browser to http://www.pcworld.com/mar97/wintips. There you can also find all the files mentioned in this article. Valerie Murray Ryan is the editor of the Do It With Windows 95 *newsletter (IDG Newsletters, 800/807-0771) and the* Windows 95 Tip of the Day *(http://www.tipworld.com). Ben Miller is a writer and musician in San Francisco. Steve Bass, Scott Dunn, and Scott Spanbauer are contributing editors for* PC World. ■

COMPUTING

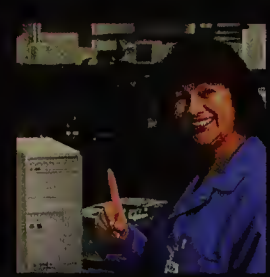
IS SERIOUS

BUSINESS

MICRON

MICRON ELECTRONICS, INC.

IF YOU'RE SERIOUS ABOUT QUALITY COMPUTING, TAKE A LOOK AT THE MICRON SOLUTION SERIES.

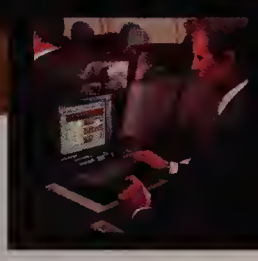


YOU DECIDED. WE'RE NUMBER ONE.

For the second year in a row, *PC World* readers recognized Micron as the top maker of reliable PCs and provider of customer service. And again Micron was rated the best overall PC Company in 1996.

PC World Reliability & Service Survey–*PC World*, December 1996

intel inside pentium PROCESSOR



TRANSPORT XPE

The Advanced Notebook Solution

Ideal for upscale business professionals who want to deliver impressive presentations, the Micron TransPort XPE is one of the most advanced notebook PCs available.

- **IMPROVE BUSINESS PRESENTATIONS** with the performance-enhancing Pentium processor featuring MMX technology.
- **REPLACE YOUR DESKTOP** with the award-winning Micron TransPort design combined with an advanced feature set that includes a 64-bit graphics accelerator, 2MB VRAM, a 12.1-inch display, an 8X CD-ROM drive and zoom video capability and a card bus that accommodates 32-bit PC cards.

TRANSPORT™ XPE

Mobile Intel Pentium® processor with MMX™

- Intel 430MX Mobile PCI chip set
- 256KB L2 pipeline burst cache
- 64-bit PCI graphics accelerator, 2MB VRAM
- 8X modular CD-ROM drive
- Pick-a-Point™ dual pointing devices
- Sound Blaster® 16-bit stereo sound
- Built-in stereo speakers and microphone
- Motorola® Montana 33.6 fax/modem
- Card bus- and zoomed video-ready
- 2 infrared ports, 1 front, 1 rear
- S-video and NTSC-video outputs
- Built-in game port
- Management Pak: MPEG Arcade™ Player, ASAP WordPower™, Quicken® SE, SPRYNET™ Internet trial membership
- Executive Travel Pak: Greg Norman Ultimate Challenge® Golf, Quicken® ExpensAble™, LapLink®, FocalPoint™
- 2 modular expansion bays (hard drive, CD-ROM drive, 3.5" floppy drive, lithium-ion battery)
- Custom nylon carrying case
- Microsoft® Windows® 95 and MS® Plus! CD
- Microsoft Office CDs
- 5-year/3-year limited Micron Power℠ warranty

- 150MHz Mobile Intel Pentium processor with MMX
- 32MB EDO RAM (80MB max.)
- 12.1" active matrix color display, 800x600
- 2.1GB removable hard drive

$4,599
Bus. lease $156/mo.

- 166MHz Mobile Intel Pentium processor with MMX
- 48MB EDO RAM (80MB max.)
- 12.1" active matrix color display, 800x600
- 2.1GB removable hard drive

$4,999
Bus. lease $170/mo.

OPTIONS

- MicronDock™ multimedia port replicator with warm docking and built-in game port
- Micron Executive desktop package
- 3Com® PCMCIA ethernet adapter, 10-base-T
- Samsonite® leather carrying case upgrade
- 2nd intelligent lithium-ion battery
- 2nd 1.4GB modular hard drive
- 2nd 2.1GB modular hard drive
- 16MB EDO RAM upgrade
- 32MB EDO RAM upgrade
- 166MHz Mobile Pentium processor with MMX upgrade
- 3GB primary hard drive upgrade
- Multimedia Xcitement Pak: POD™, Adobe® PhotoDeluxe™, Billboard Music Guide™, Blockbuster Entertainment Guide™ and Eraser Turnabout™

Ideal for the whole family, the Micron Home M
exciting home computing.

- **IMPROVE MULTIMEDIA PERFORMANC**
capability for vivid graphics and sharp, smooth
sound.
- **EXPLORE THE INTERNET** with a fast 33.6
- **ENJOY EXCITING SOFTWARE** bundles, in

HOME MPC™ P166

Intel 166MHz Pentium® processor

- 512KB pipeline burst cache, flash BIOS
- 16MB EDO RAM
- 1.6GB EIDE hard drive
- 12X EIDE CD-ROM drive, 3.5" floppy drive
- 16-bit stereo sound and speakers
- 33.6 fax/modem, speakerphone, voice mail
- Microsoft® Phone telephony software
- Internet ready: SPRYNET™ Internet trial membership, Microsoft Internet Explorer™ 3.0
- America Online® and CompuServe® trial memberships
- PCI 64-bit 3D video, MPEG, 2MB EDO RAM
- 15" Micron 15FGx, .28dp (13.7" display)
- Tool-free minitower or desktop
- Microsoft Mouse, 104-key keyboard
- Microsoft Windows® 95 and MS® Plus! CD
- Microsoft Works 4.0 CD
- Quicken® Financial Pak: Quicken Deluxe 6.0, Quicken Financial Planner™, Quicken Parents' Guide to Money™, Quicken Family Lawyer™ and free TurboTax® 1996 coupon
- Family Pak: ABC by Dr. Seuss, Thinkin' Things™ Collection 1, Earthworm Jim™ and Mechwarrior® 2
- Microsoft Home Pak: Publisher Deluxe, Encarta® Encyclopedia, Monster Truck Madness™ and CD sampler
- 5-year/3-year Micron Power℠ warranty

$1,899

With Intel 200MHz Pentium processor . . . .add $200

HOME MPC

The Exciting Home Solution

'C offers a full set of features and software bundles for

E with a 64-bit graphics accelerator with 3D and MPEG
/ideo and a 16-bit sound card with speakers for vibrant

modem and Microsoft Internet Explorer Web browser.
cluding the Microsoft Home Pak and the Micron Family Pak.

HOME MPC™ P200

Intel 200MHz Pentium processor

- 512KB pipeline burst cache, flash BIOS
- 32MB EDO RAM
- 2.5GB EIDE hard drive
- 12X EIDE CD-ROM drive, 3.5" floppy drive
- 16-bit 3D Wavetable stereo sound card
- Advent® AV270 2x25 watt stereo speakers
- 33.6 fax/modem, speakerphone, voice mail
- Microsoft Phone telephony software
- Internet ready: SPRYNET Internet trial membership, Microsoft Internet Explorer 3.0
- America Online and CompuServe trial memberships
- PCI 64-bit 3D video, MPEG, 2MB EDO RAM
- 17" Micron 17FGx, .26dp (15.8" display)
- Tool-free minitower or desktop
- Microsoft Mouse, 104-key keyboard
- Microsoft Windows 95 and MS Plus! CD
- Microsoft Works 4.0 CD
- Quicken Financial Pak: Quicken Deluxe 6.0, Quicken Financiol Planner, Quicken Parents' Guide to Money, Quicken Family Lawyer and free TurboTax 1996 coupon
- Family Pak: ABC by Dr. Seuss, Thinkin' Things Collection 1, Earthworm Jim and Mechwarrior 2
- Microsoft Home Pak: Publisher Deluxe, Encarta Encyclopedia, Monster Truck Madness and CD sampler
- ⚡5-year/3-year Micron Power warranty

$2,699

With Intel 166MHz Pentium processor . . . .subtract $100

VETIX LXI

The Custom Server Solution

Ideal for business owners and users, custom tailor a Micron Vetix LXI server to fit your company and it's growing needs.

- **GET INVESTMENT PROTECTION** with a reliable server solution that's designed to grow with your company and adapt to the needs of your changing network.
- **INCREASE INVESTMENT SECURITY** with a server that's backed by an industry-leading warranty. With every system we offer direct 24-hour telephone support and three network operating system incident resolutions. A variety of on-site service options are also available from industry-leading service provider Digital Equipment Corporation, including system setup and four-hour response support.

STANDARD FEATURES

- Dual Pentium Pro ZIF sockets
- 256KB integrated L2 cache
- Memory upgradable to 1GB with 8 DIMM slots
- 8 expansion slots: 5 PCI, 2 ISA, 1 shared ISA/PCI
- Integrated Adaptec PCI Ultra/Wide SCSI-3 controller
- 12X SCSI-2 CD-ROM drive • 3.5" floppy drive
- Integrated SVGA Graphics
- Integrated Intel EtherExpress™ Pro 100 controller
- 9 drive bays: 6 internal 3.5",3 external 5.25"
- 15" Micron 15FGx, .28dp (13.7" display)
- Microsoft® Mouse, 104-key keybaard
- Microsoft Windows NT Sever 4.0 (10-user license)
- ⚡5-year/3-yeor Micron Power℠ warranty
- 1year next-business-day, on-site service*
- Dedicated server technical support 7x24
- NOS Support (3 incident resolutions, 1year 7x24

VETIX™ LXI

Intel 200MHz Pentium® Pro processor

- 32MB ECC EDO RAM
- 2GB Ultra SCSI hard drive

$4,999

Bus. lease $170/mo.

- 64MB ECC EDO RAM
- 4GB Ultra SCSI hard drive

$5,499

Bus. lease $173/mo.

VETIX™ 2LXI

Dual Intel 200MHz Pentium Pro processors

- 128MB ECC EDO RAM
- Dual 2GB Ultra SCSI hard drives (4GB total)

$6,899

Bus. lease $217/mo.

- 256MB ECC EDO RAM
- Dual 4GB Ultra SCSI hard drives (8GB total)

$8,599

Bus. lease $270/mo.

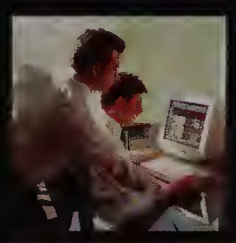
*On-site service for the Vetix LXI server is provided by Digital Equipment Corporation and is optional.

MICRON

MICRON ELECTRONICS, INC.

800•249•1176

www.mei.micron.com



MILLENNIA MXE

The Advanced Desktop Solution

Ideal for experienced users, the Micron Millennia MXE integrates the award-winning Micron Millennia platform with the advanced MMX technology from Intel.

- **IMPROVE PRODUCTIVITY** with performance-enhancing innovations like the Pentium® processor with MMX™ technology and 32KB level-1 cache.
- **IMPROVE MULTIMEDIA PERFORMANCE** with the advanced sound, graphics and video features of the Pentium Processor with MMX.
- **IMPROVE COMMUNICATION CAPABILITY** with special enhancements on the new Pentium processor that accelerate existing and emerging communication hardware and software and improve your Internet and intranet experience.

MMX™ intel inside pentium® PROCESSOR

MILLENNIA™ MXE P166

Intel 166MHz Pentium® processor with MMX™

- 512KB pipeline burst cache, flash BIOS
- 12X EIDE CD-ROM drive, 3.5" floppy drive
- **100MB Iomega® Zip™ drive**
- Sound Blaster® 32 Wavetable 3D stereo sound card with speakers
- PCI 64-bit 3D video, MPEG, 4MB EDO RAM
- Tool-free minitower or desktop
- Microsoft® Mouse, 104-key keyboard
- Microsoft Windows® 95 and MS® Plus! CD
- Multimedia Xcitement Pak: POD™, Adobe® PhotoDeluxe™, Billboard Music Guide™, Blockbuster Entertainment Guide™ and Eraser Turnabout™
- 5-year/3-year Micron Power℠ warranty

• 16MB EDO RAM
- 1.6GB EIDE hard drive
- 15" Micron 15FGx, .28dp (13.7" display)
- Microsoft Works 95 CD

$1,999 Bus. lease $68/mo.

• 32MB EDO RAM
- 2.5GB EIDE hard drive
- 15" Micron 15FGx, .28dp (13.7" display)
- Microsoft Office CDs

$2,299 Bus. lease $78/mo.

• 64MB EDO RAM
- 3.1GB EIDE hard drive
- 17" Micron 17FGx, .26dp (15.8" display)
- Microsoft Office CDs

$2,899 Bus. lease $99/mo.

With Intel 200MHz Pentium processor with MMX .....add $200

MILLENNIA™ MXE P200 PLUS

Intel 200MHz Pentium processor with MMX

- 512KB pipeline burst cache, flash BIOS
- PCI 32-bit Ultra SCSI Fast-20 controller
- 12X SCSI CD-ROM drive, 3.5" floppy drive
- **100MB Iomega Zip drive**
- Sound Blaster 32 Wavetable 3D stereo sound card with speakers
- PCI 64-bit 3D video, MPEG, 4MB EDO RAM
- Tool-free minitower or desktop
- Microsoft Mouse, 104-key keyboard
- Microsoft Windows 95 and MS Plus! CD
- Multimedia Xcitement Pak: POD, Adobe PhotoDeluxe, Billboard Music Guide, Blockbuster Entertainment Guide and Eraser Turnabout
- 5-year/3-year Micron Power warranty

• 16MB EDO RAM
- 2GB Ultra SCSI hard drive
- 15" Micron 15FGx, .28dp (13.7" display)
- Microsoft Works 95 CD

$2,899 Bus. lease $99/mo.

• 32MB EDO RAM
- 4GB Ultra SCSI hard drive
- 15" Micron 15FGx, .28dp (13.7" display)
- Microsoft Office CDs

$3,399 Bus. lease $116/mo.

• 64MB EDO RAM
- 9GB Fast SCSI-2 hard drive
- 17" Micron 17FGx, .26dp (15.8" display)
- Microsoft Office CDs

$4,999 Bus. lease $170/mo.

With Intel 166MHz Pentium processor with MMX .....subtract $100

PC MAGAZINE BEST OF 1995 — January 9, 1996 — Millennia line

PC MAGAZINE EDITORS' CHOICE — June 25, 1996 — Millennia P166

PC MAGAZINE EDITORS' CHOICE — June 25, 1996 — Millennia P133

PC MAGAZINE EDITORS' CHOICE — August 1996 — Millennia TransPort P133

PC MAGAZINE EDITORS' CHOICE — May 30, 1995 — Millennia P120

PC MAGAZINE EDITORS' CHOICE — May 16, 1995 — Home MPC P90

SERVICE & RELIABILITY PC MAGAZINE READERS' CHOICE — 1994 and 1995

PC WORLD BEST BUY — January 1996 — Millennia P133

Windows Stellar APRIL 1996 — April 1996 — Millennia TransPort

Computer Shopper Best Buy OF 1996 — January 1996 — PowerServer SMP P133

ComputerLife BEST OF BEST EVERYTHING 1996 — June 1996 — Millennia P166

Family Computer Magazine RECOMMENDED — May 1996 — Home MPC P133

MVP PC Computing — December 1995 — Millennia P133

POWER DESKTOP SOLUTIONS

MILLENNIA™ PRO2 180

Intel 180MHz Pentium® Pro processor

- Supports dual Intel 180MHz Pentium Pro processors
- 256K8 internal L2 cache, flash BIOS
- 12X EIDE CD-ROM drive, 3.5" floppy drive
- 16-bit stereo sound and speakers
- **PCI 64-bit 3D video, MPEG, 4MB EDO RAM**
- Tool-free minitower or desktop
- Microsoft® Mouse, 104-key keyboard
- Microsoft Windows® 95 and MS® Plus! CD
- 5-year/3-year Micron Power℠ warranty

- **16MB EDO RAM**
- 2.5G8 EIDE hard drive
- 15" Micron 15FGx, .28dp (13.7" display)
- Microsoft Works 95 CD

$2,199
Bus. lease $75/mo.

- **32MB EDO RAM**
- 3.1G8 EIDE hard drive
- 17" Micron 17FGx, .26dp (15.8" display)
- Microsoft Office CDs

$2,699
Bus. lease $92/mo.

With 2nd Intel 180MHz Pentium Pro processor ..... add $599*
With Microsoft Windows NT® Workstation 4.0 CD ..... add $99
* Second processor requires Microsoft Windows NT® Workstation 4.0

MILLENNIA™ PRO2 400 PLUS

Dual Intel 200MHz Pentium Pro processors

- 256KB internal L2 cache, flash BIOS
- PCI 32-bit Ultra SCSI Fast-20 controller
- 12X SCSI CD-ROM drive, 3.5" floppy drive
- 16-bit stereo sound and speakers
- **PCI 64-bit 3D video, MPEG, 4MB EDO RAM**
- Tool-free minitower or desktop
- Microsoft® Mouse, 104-key keyboard
- Microsoft Windows NT Workstation 4.0 CD
- Microsoft Office CDs
- 5-year/3-year Micron Power℠ warranty

- **32MB EDO RAM**
- 2G8 Ultra SCSI hard drive
- 15" Micron 15FGx, .28dp (13.7" display)

$3,899
Bus. lease $133/mo.

- **64MB EDO RAM**
- 4GB Ultra SCSI hard drive
- 17" Micron 17FGx, .26dp (15.8" display)

$4,749
Bus. lease $162/mo.

- **128MB EDO RAM**
- 9G8 Fast SCSI-2 hard drive
- 21" Micron 21FGx, .26dp (20.0" display)

$6,999
Bus. lease $220/mo.

ADVANCED NOTEBOOK SOLUTIONS

TRANSPORT™ MRX

Mobile Intel Pentium® processor

- Intel 430MX Mobile PCI chip set
- 256KB L2 pipeline burst cache
- 8X modular CD-ROM drive
- PCI graphics accelerator, 1M8 EDO RAM
- Pick-a-Point™ dual pointing devices
- Sound Blaster® 16-bit stereo sound
- Built-in stereo speakers and microphone
- 2 infrared ports, 1 front, 1 rear
- S-video and NTSC-video outputs
- Management Pak: MPEG Arcade™ Player, ASAP WordPower™, Quicken® SE, SPRYNET™ Internet trial membership
- 2 modular expansion bays (hard drive, CD-ROM drive, 3.5" floppy drive, lithium-ion battery)
- Custom nylon carrying case
- Microsoft® Windows® 95 and MS® Plus! CDs
- Microsoft Office CDs
- 5-year/3-year limited Micron Power℠ warranty

- 133MHz Mobile Intel Pentium processor
- 16M8 EDO RAM (48M8 max.)
- 11.3" active matrix color display, 800x600
- 1.4G8 removable hard drive

$3,199
Bus. lease $109/mo.

OPTIONS

- MicronDock™ multimedia port replicator
- Micron Executive desktop package
- Motorola® Montana 33.6 fax/modem
- 3Com® PCMCIA ethernet adapter, 10-base-T
- Samsonite® leather carrying case upgrade
- 2.1GB primary hard drive upgrade
- 2nd intelligent lithium-ion battery
- 2nd 1.4G8 modular hard drive
- 2nd 2.1G8 modular hard drive
- Car adapter
- 16MB EDO RAM upgrade
- 32M8 EDO RAM upgrade

MICRON EXECUTIVE DESKTOP PACKAGE:
Includes matching black 17" monitor, mouse, mousepad and keyboard

ECONOMICAL DESKTOP SOLUTIONS

MILLENNIA™ LXA P166

Intel 166MHz Pentium® processor

- 512K8 pipeline burst cache, flash BIOS
- 12X EIDE CD-ROM drive, 3.5" floppy drive
- PCI 64-bit 3D video, MPEG, 2MB EDO RAM
- Tool-free minitower or desktop
- Microsoft® Mouse, 104-key keyboard
- Microsoft Windows® 95 and MS® Plus! CD
- Microsoft Works 95 CD
- 5-year/3-year Micron Power℠ warranty

- **16MB EDO RAM**
- 1.6G8 EIDE hard drive
- 15" Micron 15FGx, .28dp (13.7" display)

$1,599
Bus. lease $54/mo.

- **32MB EDO RAM**
- 2.5G8 EIDE hard drive
- 17" Micron 17FGx, .26dp (15.8" display)

$2,099
Bus. lease $71/mo.

With Intel 200MHz Pentium processor .... add $200

Micron Power℠ Warranty & Support

- 5-year limited warranty on microprocessor and main memory
- 3-year limited parts-only system warranty
- 1-, 2- or 3-year optional on-site service agreement for Micron desktop and server systems
- 30 days of free Micron-supplied software support for Micron desktop systems; 3 optional network operating system incident resolutions included for Micron server systems
- 30-day money-back policy
- 24-hour technical support

The foregoing is subject to and qualified by Micron's standard limited warranties and terms and conditions of sale. Terms and conditions of sale my vary for specific configurations. Copies of the limited warranties may be obtained on our Web site or by calling Micron.

- Micron Sales Hours: Mon-Fri 6am-10pm, Sat 7am-5pm (MT)
- Technical Support Available 24 Hours A Day-7 Days A Week
- Tollfree from Mexico: 95-800-708-1755
- Tollfree from Canada: 800-708-1758
- Tollfree from Puerto Rico: 800-708-1756
- International Fax: 208-893-7393
- International Sales: 208-893-8970

MMX™ intel inside pentium® PROCESSOR

intel inside pentium PROCESSOR

intel inside PENTIUM® PRO PROCESSOR

MICRON

MICRON ELECTRONICS, INC.
800•249•1176
www.mei.micron.com

©1997 Micron Electronics, Inc. All rights reserved. Micron Electronics is not responsible for omissions or errors in typography or photography. All purchases are subject to availability. Prices and specifications may be changed without notice; prices do not include shipping and handling, 30-day money-back policy does not include return freight and original shipping/handling charges, applies only to Micron brand products and begins from date of shipment. All sales are subject to Micron Electronics' current terms and conditions of sale. Lease prices based on 36-month lease. Intel, Intel Inside and Pentium are registered trademarks of the Intel Corporation. Microsoft, Windows, Windows NT and the Windows logo are registered trademarks of Microsoft Corporation. All other service marks, trademarks and registered trademarks are the property of their respective companies. *On-site service for the Vetix Lxi Server is provided by Digital Equipment Corporation and is optional.
PCWD-FAM-9703

MAKE A GREAT PC EVEN BETTER!

Custom configure your new Micron Electronics system with these popular options.

Multimedia Options

- 16-bit 3D Wavetable stereo sound.. $59*
- 16-bit 3D Wavetable stereo soundcard w/2MB RAM $99*
- Advent® AV270 Powered Partners® stereo speakers $99
- Advent AV370 Powered Partners stereo speakers w/subwoofer $199
- Microsoft® SideWinder™ 3D Pro joystick $59
- Microsoft Side Winder game pad $39

Storage/Media Options

- Adaptec® 2940U Ultra SCSI Fast-20 controller $100
  (upgrade from system with standard Ultra SCSI Fast-20 controller)
- Plextor™ 12PleX 12X 1.8MB/sec SCSI internal CD-ROM drive $200 **
  (upgrade from systems with standard 12X EIDE CD-ROM drive)
- Iomega® Jaz™ SCSI drive with 1GB removable cartridge $399 **
- Iomega Zip™ IDE drive with 100MB removable cartridge $99
- Iomega 6-pack of 100MB Zip cartridges $99
- Iomega Ditto™ 800 (400/800MB) Travan™ tape backup w/tape $149
- Iomega Ditto 3200 (1.6/3.2GB) Travan tape backup w/tape $199
- Sony® 4/8GB SCSI DDS-2 DAT tape backup w/tape $999 **

Communications Options

- 33.6bd V.34 internal data/fax modem $139***
- 33.6bd V.34 internal telephony data/fax modem w/full duplex speakerphone and voice mail $159***†

Networking Options

- 3Com® 3C509 ethernet ISA NIC (BNC, AUI & RJ-45) $99
- 3Com 3C595 Fast EtherLink® PCI 10/100 NIC (RJ-45 only) $159
- SMC® ISA TokenCard network card $199

HP® Printer Options

NEW

- HP DeskJet® 690c printer—photo-quality color printing for the home, complete with cable $369
- HP LaserJet® 5L-FS printer—affordable B&W printing, complete with cable $449 (with rebate)
- HP LaserJet® 6P printer–full-featured B&W printing, complete with cable $799

Additional DeskJet/LaserJet models available. Please call for details

Software Options

EdVenture Pak: Sheila Ray the Brave, Putt-Putt® Saves the Zoo™, Reader Rabbit's Reading Development Library™ 1, Freddi Fish™ and the Case of the Missing Kelp Seeds™ and the Thinkin' Things™ Collection 2 $69
(available only on desktop and notebook systems with Windows® 95)

Quicken® Financial Pak: Quicken Deluxe, Quicken Financial Planner™, Quicken Parents' Guide to Money™, Quicken Family Lawyer™ and free TurboTax® 1996 coupon $79
(available only on desktop and notebook systems with Windows® 95)

Display/Video Options

- 17" Hitachi® SuperScan® 1711 (15.9" display) .26dp color monitor $150 ††
- 21" Hitachi SuperScan 2111 (20" display) .26dp color monitor $650 ††
- Number Nine® Imagine™ 128 series II video card w/4MB VRAM. $500 †††

TransPort™ Options

- MicronDock™ multimedia port replicator: ethernet 10BT LAN adapter, SCSI-2 port, S-video and NTSC-video output, built-in stereo speakers, infrared port, headphone, microphone, line-in jacks, parallel, serial, VGA and 2 PS/2® ports (with warm dock and built-in game port–available on XPE models only) $299
- Micron Executive™ desktop package: matching black 17" monitor (15.8" display), mouse, mousepad and keyboard (can be used with or without MicronDock) $699
- Motorola® Montana 36.6 fax/modem supports regular telephone connections, cellular phones and two-way paging devices $259

Service Options

- Extended 2-year on-site service coverage for desktop systems $99
  (upgrade from optional 1-year on-site service coverage)
- Extended 3-year on-site service coverage for desktop systems $139
  (upgrade from optional 1-year on-site service coverage)
- Complete on-site PC installation (call Micron Electronics™ for details) $159

Other Options

- APC® Pro7T surge suppressor $39
- APC Pro7T surge suppressor $59
- Microsoft Natural Keyboard® $49
  (upgrade from standard keyboard)

* Upgrade from systems with standard 16-bit stereo sound card
** Requires SCSI host adapter
*** V.34 modem includes trial memberships to CompuServe®, Prodigy® and America Online®
† Requires sound card
†† Upgrade from systems with standard Micron 17" 17FGx color monitor
††† Upgrade from systems with standard 64-bit 2MB video card

Options and accessories available with system purchase only.

MICRON

MICRON ELECTRONICS, INC.

800·249·1176

www.mei.micron.com

Circle 149 on reader service card

Digital cameras are finally affordable. We test ten point-and-shoot models priced as low as $199 that can free you from the hassles of film.

BY RICHARD JANTZ

PHOTOGRAPHY: ROBERT CARDIN; PHOTO-ILLUSTRATION: JEFF BERLIN

cheap shots

NOT LONG AGO, instant photography meant pushing a shutter release and waiting 2 minutes to peel apart the Polaroid print. Times change. Now for as little as $199, you can take a picture, fire up your PC, and within minutes post the shot on a Web page or paste it into a newsletter. Digital cameras have radically simplified the process of getting your pictures into your PC. There are no rolls of film to buy, no prints to develop, no scanning; you simply connect a digital camera to your PC with a cable or PC Card, then pick the images you want to transfer to your hard drive.

Is it time to toss out your 35mm camera? That depends on what kinds of pictures you need. If you're shooting your newest product for a glossy ad campaign or your company's annual report, keep in mind that the digital cameras we looked at don't produce anything close to the image quality of film. But if all you need is a simple photo for a Web site, a presentation, or a database record, an inexpensive digital camera is just fine—with quality almost as pleasing as that from a low-priced desktop scanner. And a digital camera won't cost you an arm and a leg. A year ago, most of them cost over $1000. For this review, we found ten cameras that range from $199 to ▶

$999. And a bunch more are on the way (see "New Cameras: Digital Evolution").

The entry-level digital cameras we saw are targeted for casual and business use. They are small and light, battery powered, and have image resolutions of 832 by 608 or lower. We took shots indoors and out, compared picture quality, tested battery life, and measured how long it took to download our images into a PC. We also noted how easy it was to use each camera.

BEST BUYS

Olympus and Epson

NEED PICTURES PRONTO? The $599 Olympus D-200L produces crisp, accurate images, and it's one of the few cameras we looked at that has both an optical viewfinder and color LCD screen built in. Its quality and design make it our Best Buy for both business and play. The $399 Epson PhotoPC earns our Best Buy for casual users. Of the low-priced cameras we reviewed, the PhotoPC serves up the best features and performance. Like the Olympus, Epson's camera takes good pictures at 640-by-480 resolution, indoors or out.

PICKING A CAMERA

A TYPICAL DIGITAL CAMERA is a lot like a point-and-shoot film camera: It has a viewfinder, a flash, and a control panel that shows the number of shots taken, battery status, and so on.

The ideal digital camera would fit into a pocket; store 50 or more images (at high resolution, of course); sport a zoom lens, optical viewfinder and LCD screen; and cost less than $500. The latest cameras have some of those features, but none have it all for that price.

The key questions to ask are, how sharp do my images have to be, how much storage do I need, and how much can I pay? The higher the resolution, the sharper the picture quality—but this drives up the camera's price. Another expense is memory. The more the camera has, the more pictures it can store. Using PC Cards is the most expensive storage technique, but it's the best way to hold lots of images. Canon's PowerShot 600, for example, can use an optional $389 PC Card that stores up to 800 high-resolution images.

Next, consider the camera's size and controls. The Casio QV-10Aplus and Kodak DC20 are small enough to fit comfortably in a coat pocket. The Agfa, Epson, and Olympus models all have the same compact look and feel of standard point-and-shoot cameras. Others, such as the Apple QuickTake 150 and Kodak DC40 and DC50, resemble small video cameras. Some of the more esoteric controls include the Kodak DC50's motorized 3X zoom lens and the Casio and Ricoh's ability to display images on a TV. The Canon and Ricoh cameras can also record sound.

WHAT'S WRONG WITH THIS PICTURE?

DIGITAL CAMERAS, like all cameras, live or die on image quality. We took shots

FEATURES COMPARISON

DIGITAL CAMERAS	Street price 1/2/97	Camera height x width x depth (inches)	Weight (ounces)	IMAGE CAPTURE: Resolution (maximum/minimum)	IMAGE CAPTURE: Image capacity (max. res./ min. res.)	IMAGE CAPTURE: Standard memory (MB)	PHOTOGRAPHIC SPECS: Equivalent 35mm lens size (mm)	PHOTOGRAPHIC SPECS: Aperture	PHOTOGRAPHIC SPECS: Shutter speed range (second)
Agfa ePhoto 307	$550	3 x 5.5 x 1.5	13	640 x 480 / 320 x 240	36 / 72	2	43	f/2.8 to f/8	1/30 to 1/10,000
Apple QuickTake 150	$599	2.2 x 5.3 x 6.1	16	640 x 480 / 640 x 480	16 / 32	1	50	f/2.8 to f/16	1/30 to 1/175
Canon PowerShot 600	$950	3.6 x 6.2 x 2.3	22	832 x 608 / 320 x 240	4 / 36	1	50	f/2.5 to f/16	1/30 to 1/500
Casio QV-10Aplus	$399	2.6 x 5.1 x 1.6	7	480 x 240 / 480 x 240	96 / 96	2	60	f/2.8 to f/8	1/8 to 1/4000
Epson PhotoPC*	$399	3.5 x 6.5 x 1.9	27	640 x 480 / 320 x 240	16 / 32	1	45	f/2.8 to f/8	1/30 to 1/10,000
Kodak DC20	$199	2.4 x 4 x 1.2	4.2	493 x 373 / 320 x 240	8 / 16	1	47	f/2.8 to f/8	1/30 to 1/4000
Kodak DC40	$599	2.2 x 6.1 x 5.3	16	756 x 504 / 756 x 504	48 / 99	4	42	f/2.8 to f/16	1/30 to 1/175
Kodak DC50	$865	2.4 x 4.3 x 5.9	22	756 x 504 / 756 x 504	7 / 22	1	37 to 111	f/2.8 to f/24	1/16 to 1/500
Olympus D-200L*	$599	5.7 x 2.8 x 1.8	11	640 x 480 / 320 x 240	20 / 80	2	35	f/2.8 to f/16	1/8 to 1/10,000
Ricoh RDC-2	$999	5.6 x 1.1 x 3	11	768 x 576 / 768 x 576	9 / 38	2	35 or 55	f/2.8 to f/16	1/8 to 1/1000

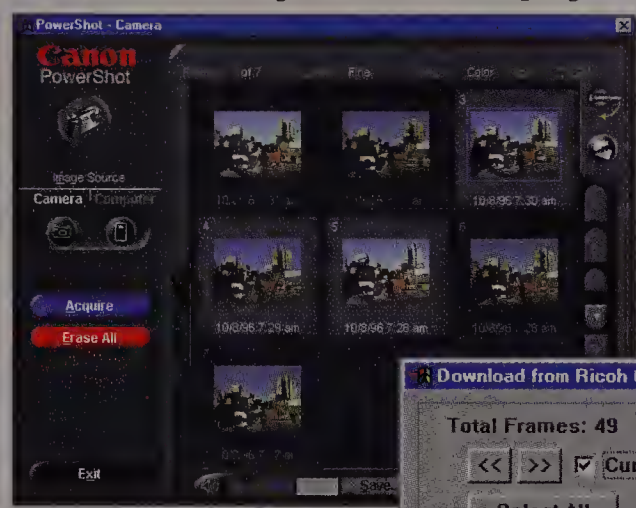
*Best Buy ● Yes ○ No

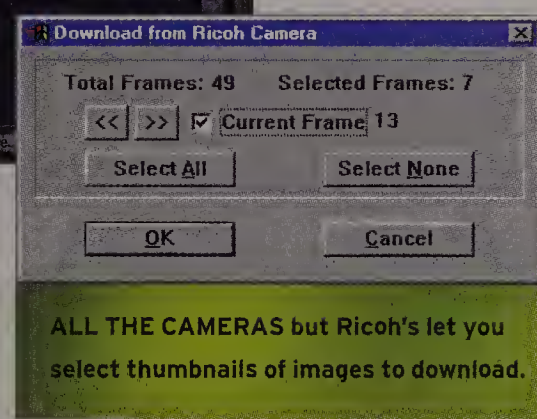
both indoors and out and compared how well each camera was able to shoot a focused picture at the correct exposure. To compare our digital images with scanned color slides, we also used two 35mm film cameras—a Nikon point-and-shoot and a Canon SLR. We viewed the images in Adobe Photoshop and printed each one on a Tektronix Phaser 440 dye-sublimation printer and a Hewlett-Packard DeskJet 683 ink jet printer.

In our picture-quality tests we found that images varied wildly—from true-to-life color and minute details with the Canon PowerShot 600 to washed-out color and chunky pixels with the Casio QV-10Aplus and Kodak DC20 (for a sample of these images, see "Canon: Best Digital Shots"). The Agfa, Epson, and Olympus cameras tended to produce more lively and vibrant colors than did the Kodak and Ricoh. The Canon was the only one that consistently got the colors just about right.

Most digital camera images look pretty good on a monitor. For printing, you'll get the best detail from higher-resolution (756 by 504 or better) cameras such as the Canon, the Kodak DC40 and DC50, and the Ricoh. We made 5-by-7-inch prints that showed little visible image loss compared with what we saw on screen. Print a 640-by-480 image and you'll get a baseball card–size printout of decent quality.

We also looked at the software bundled with each camera. All but the Ricoh include a TWAIN driver, which downloads a camera's pictures directly into your favorite image editor or other program that supports the TWAIN standard. Most TWAIN software shows you a thumbnail gallery of your images. Before you download, simply select the thumbnails of the images you wish to keep.





ALL THE CAMERAS but Ricoh's let you select thumbnails of images to download.

Generally it doesn't take long to download images from the camera to your PC. The Canon was the only camera to use a parallel cable and so was the quickest—5 seconds per shot. Most took less than 20 seconds. The worst was the Kodak DC20, which took on average 30 seconds to transfer each of its low-resolution images.

PARTING SHOTS

SOME DIGITAL CAMERAS can really guzzle batteries. We were amazed that the Canon took only 72 shots, lasting just over an hour, before its battery was drained. Fortunately the battery is rechargeable. On the other hand, the Apple lasted 8 hours on three AA lithium batteries, letting us take over 1000 images. Most of the cameras here can use standard AA alkaline batteries, which is handy because you can buy them most anywhere. But if you plan to take lots of photos, invest in a camera that can also use rechargeable batteries.

Finally, don't forget that you'll need to store those digital images. It won't take long for your photos to consume your PC's hard drive. The size of our digital images was up to 1MB each. If you buy a digital camera, do yourself a favor and buy a removable media drive.

Images from all the cameras are on PC World Online (http://www.pcworld.com). Richard Jantz is a freelance writer in Kensington, California.

For more information about all products in this article, circle reader service no. 914. ▶

					CONTROLS				SUPPORT	
Viewfinder	Closest focus range (inches)	Flash	Batteries	Output	Images deleted	Image protection	Self-timer	Date stamp	Warranty (years)	Weekday/weekend support (hours)
optical	24	●	4 AA alkaline	serial	selected	○	●	●	1	8/0
optical	10	●	3 AA lithium or NiCd	serial	all	○	●	○	1	24/24
optical	4	●	1 proprietary NiCd	parallel, PC Card	selected	○	●	●	1	18/18
1.8-inch color LCD	4	○	4 AA alkaline	serial, TV	selected	●	●	○	1	10/7
optical	8	●	4 AA alkaline	serial	selected	○	●	○	1	12/0
optical	19	○	1 lithium	serial	all	○	○	○	1	11/0
optical	48	●	4 AA alkaline or lithium	serial	selected	○	●	○	1	11/0
optical	19	●	4 AA alkaline or lithium	serial, PC Card	selected	○	●	○	1	11/0
optical, 1.8-inch color LCD	8	●	4 AA alkaline	serial	selected	●	●	●	1	8/0
optical, 1.8-inch color LCD	8	●	4 AA alkaline, NiCd, or NiMH	serial, PC Card, TV	selected	●	●	●	1	8/0

There is a part of you that remembers
(vaguely)
how it feels
to be passionate about your work.

To find a challenge around every corner.

To constantly search out faster, smarter
ways to get the job done.

There is a part of you that
still needs to do extraordinary things.

START™
DOING
EXTRAORDINARY
THINGS

Designed for Microsoft Windows 95

LPGA OFFICIAL COMPUTER AND SCORING SYSTEM OF THE LPGA

Microsoft Internet Explorer

Look for the certificate of authenticity. Genuine Microsoft Products

"Start Doing Extraordinary Things" and livegear are trademarks and TravelMate is a registered trademark of Texas Instruments. Pentium and the Intel Inside logo are registered trademarks of Intel Corp. The Genuine Microsoft Products logo is a trademark and Microsoft, Windows and the Windows logo are registered trademarks of Microsoft Corp. *Compared to the IBM 760ED, Compaq LTE 5300, Toshiba Tecra 720CDT. © 1996 TI.

To rekindle the spark between you and your work, we created the TravelMate® 6000 series. A unique 6-way modular bay offers unparalleled storage and memory capabilities, thus giving you greater freedom and flexibility. Add to that a screen that's significantly brighter yet consumes less power, along with a wide range of optional docking stations, and you've got the world's lightest, high performance modular notebook.* And one that's fully supported by our new line of livegear™ accessories. Making the TravelMate not just an extraordinary piece of technology. But 5.9 pounds of pure inspiration.

TRAVELMATE 6000 SERIES

- Weight: 5.9 lbs.
- 6-way modular bay with floppy & optional 6X CD-ROM, high capacity diskette drive, 2nd Lithium ion battery, 2nd HDD, weight reduction module
- Energy-saving, super high aperture TFT screen
- Zoomed Video port
- 120, 133 or new 150MHz Pentium® processor with PCI bus (internal and external)

Texas Instruments livegear™ Accessories for mobile computing

intel inside pentium® PROCESSOR

1-800-TI-TEXAS E-mail: 2ti@msg.ti.com
Internet: http://www.ti.com/notebook

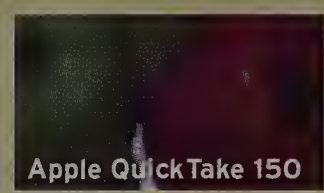
TEXAS INSTRUMENTS

Circle 220 on reader service card

Canon Best Digital Shots

Do digital images measure up to conventional film photos? The proof is in the pixels. Of the digital cameras we tested, Canon's produces the best-looking images—close to film quality. Although the colors look a bit flat, Canon's high-resolution 832-by-608 image detail is impressive. Each of its pictures came out razor sharp. We also got good-looking shots from the Agfa, Epson, and Olympus cameras. All three deliver sharp 640-by-480 pictures with accurate colors, minimal pixel patterns, and not too much contrast. Pixel distortion mars the Ricoh's photos, while shots from the Apple QuickTake and all the Kodak cameras come out faded and fuzzy. The worst results are the low-resolution pictures from the Casio and the Kodak DC20.

35mm film camera


Apple QuickTake 150

Ricoh RDC-2

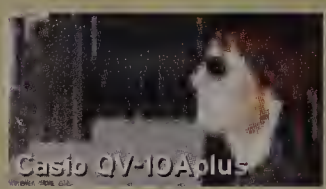
Canon PowerShot 600

Epson Photo PC

Olympus D-200L

Kodak DC20

Agfa ePhoto 307


Casio QV-10Aplus

Canon PowerShot 600

35mm film camera

Epson Photo PC

Olympus D-200L

Kodak DC20

AGFA EPHOTO 307

PRO: Good picture quality, easy to use, fast download, red-eye reduction

CON: Can't upgrade storage capacity, no close-up lens, no LCD screen

The ePhoto 307 is the first digital camera from Agfa aimed at business users. It's an easy-to-use camera that delivers sharp digital images—properly exposed without too much contrast or color shift—but for $550, we expected more.

The ePhoto 307 works like a point-and-shoot film camera. A sliding panel on the front turns the unit on and off and protects the lens. The control panel is on top, making it easy to change the image resolution, set the flash mode, turn on the self-timer, and erase images. At a glance, you can see how many shots are left or check the battery status. The ePhoto 307's 2MB of memory can hold 36 images at 640 by 480, or 72 at a lower resolution.

Downloading the ePhoto 307's images to a PC through the serial cable took just 6 seconds per image—surpassed only by the Canon PowerShot 600, which downloads larger images through a parallel cable. The ePhoto 307 bundles two programs: Agfa PhotoWise for downloading your shots, and Adobe PhotoDeluxe for manipulating pictures in some cool ways. *Agfa Division, Bayer Corp., 800/227-2780, http://www.agfahome.com*

READER SERVICE NO. 779

APPLE QUICKTAKE 150

PRO: Terrific battery life, 24-hour support

CON: Lackluster picture quality, can't upgrade storage capacity, overpriced, no LCD screen

Apple's QuickTake 150 is the oldest digital camera in our roundup, but after almost two years there's still life in it. For starters, it has the longest battery life of all the models we tested—8 hours. The three nonrechargeable AA lithium batteries included allowed us to take over 1000 pictures, but oddly, this camera can't use standard AA alkaline batteries. Unfortunately, the QuickTake 150's images were not nearly as impressive as its battery life. Our test shots lacked contrast, and colors were too pale.

The camera is easy to use. It looks and feels like a camcorder—you simply slip your right hand through a strap and compose the shot through the viewfinder. ▶

The DIAMONDTRON advantage is now even bigger, sharper and clearer.

Introducing the world's first .28 mm, 21-inch (19.7" DVI*) aperture grille monitor.

The new Diamond Pro 91TXM (21" CRT/19.7" diagonal viewable image) from Mitsubishi Electronics represents an unprecedented improvement in the way you'll look at monitors from this moment on.

MITSUBISHI DIAMONDTRON™ CRT TECHNOLOGY

Bright, vivid colors with superb contrast. Razor-sharp focus due to Mitsubishi's enhanced electron gun. High refresh rate for flicker-free imagery. On-Screen Display system with intuitive front-panel controls. All in an ergonomic, compact enclosure that fits easily into any workspace.

Best of all, the Diamond Pro 91TXM is available at the estimated selling price of $1,699, including a comprehensive 3-year warranty and support program to keep it working at peak efficiency. The new Diamond Pro 87TXM (17" CRT/16.0" diagonal viewable image) is also available, with an estimated selling price of $849.

Get all the details today—both on-screen and off—by calling Mitsubishi Electronics at **1-800-843-2515** in the U.S. and Mexico. In Canada call **1-800-387-9630**. *For immediate product specifications call Mitsubishi Qwikfax at* ***1-800-937-2094***. World Wide Web http://www.mitsubishi-display.com

Designed for Microsoft Windows 95 · Mac OS · Rated NewMedia Magazine Awesome · Windows Magazine Recommended · Info World Top Score · Reseller News Test Center Fall Comdex '96 · MacUser Awards Editors' Choice 1996 Finalist

Award-Winning DIAMONDTRON Technology · Diamond Pro 91TXM

MITSUBISHI DISPLAY PRODUCTS

©1997 Mitsubishi Electronics America, Inc. DIAMONDTRON is a trademark of Mitsubishi Electronics America, Inc.
Microsoft, Windows and the Windows logo are registered trademarks of Microsoft corporation. Mac and the Mac OS logo are trademarks of Apple Computer, Inc.
* DVI: Diagonal viewable image

Circle 182 on reader service card

A panel in back indicates battery status, flash mode, number of shots taken, and settings for picture quality and the self-timer.

We weren't very pleased when the QuickTake's Erase control zapped all our stored images. Better cameras let you select the images you want to delete. The QuickTake 150's 1MB of internal memory holds only between 16 and 32 pictures at 640 by 480 resolution. And for close-up shots, the QuickTake comes with a plastic lens adapter—it looks like a Cracker Jack prize, but it gets you within 10 inches of your subject.

Downloading images was tedious. The bundled PhotoNow image editor accepts pictures only one at a time instead of in batches. The bottom line: $599 is too much to pay for Apple's QuickTake 150. *Apple Computer Inc., 800/598-2386, http://www.apple.com*

READER SERVICE NO. 780

CANON POWERSHOT 600

PRO: Terrific high-resolution pictures, quick downloads, uses PC Cards, records sound

CON: Expensive, bulky, complex to use, short battery life, slow image capture, no LCD screen

If image quality is vital in your line of work, consider the $950 Canon PowerShot 600—it takes the best pictures of any camera we reviewed. Higher-resolution images were sharp and properly exposed, with colors close to film quality. Unlike the other cameras, Canon's lets you pick the resolution *and* compression mode (fine, normal, and economy). At 832 by 608, it captures from 4 to 15 shots; at 640 by 480, you get from 6 to 19 shots; and at 320 by 240, up to 36. For marathon photo sessions you'll need Canon's 170MB PC Card hard drive ($389), which can hold 800 high-resolution shots or a whopping 5500 at low resolution.

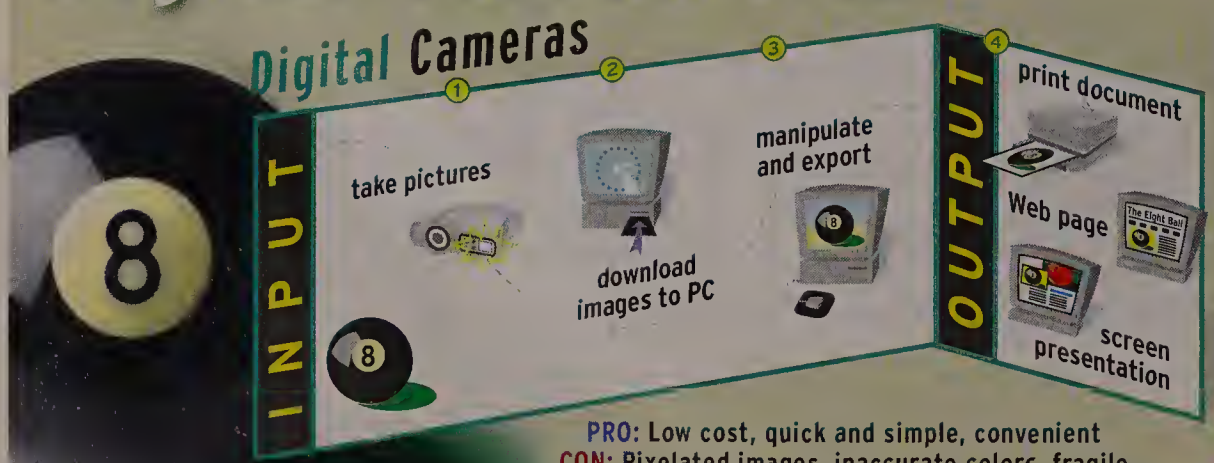
All in all, though, we don't like this expensive camera. For starters, it's too bulky for mobile users. Battery life is short, and image capture is slow. For example, to get a little more than an hour of continuous picture-taking, we had to charge the PowerShot 600's proprietary NiCd battery for at least 12 hours. And in the field, we had to wait up to 5 seconds between shots. Some of the ▶

Typical Costs for 1000 Shots

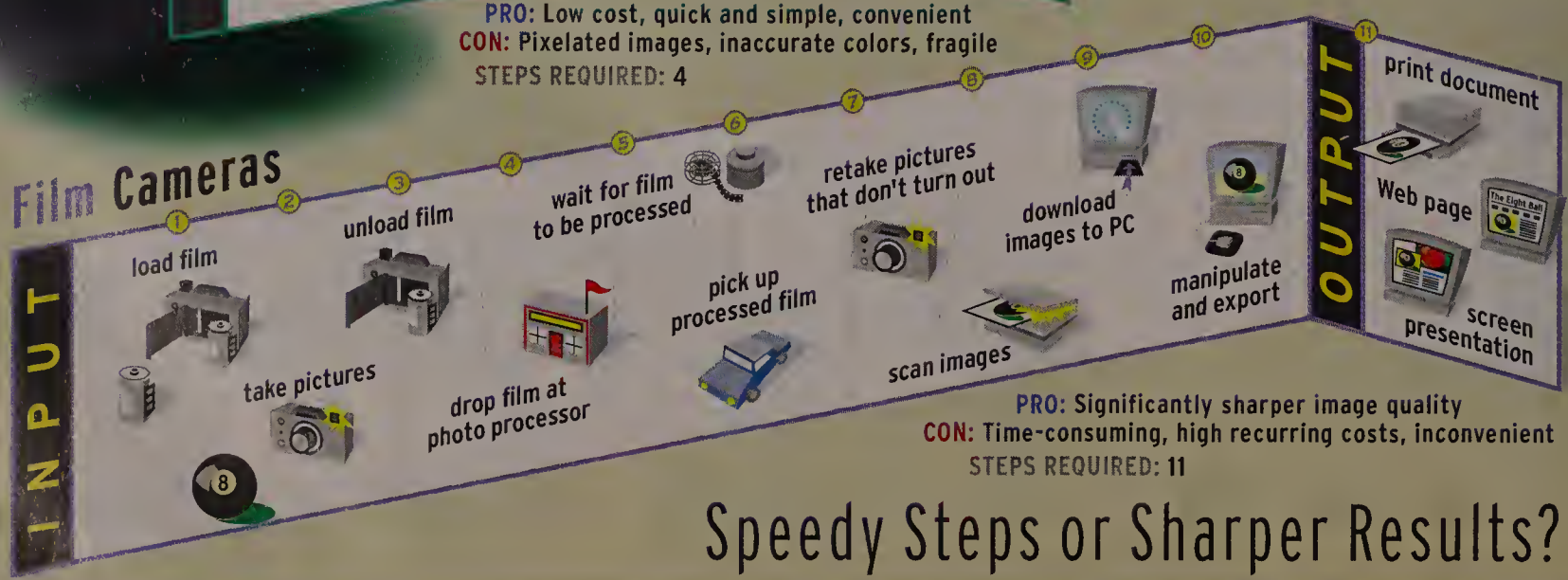
Recurring expenses	Digital	Film
Batteries ($5 per pack of 4 AA)	$ 20	$ 0
Film ($8 per roll of 36)	$ 0	$ 222
Processing ($13 per roll)	$ 0	$ 361
Total	$ 20	$583

Other potential expenses	Digital	Film
Put images on a CD ($20 per roll)	$ 0	$ 560
300-dpi scanner	$ 0	$ 369
Removable storage (Iomega Zip drive)	$ 199	$ 199
100MB Zip disk ($20 each)	$ 200	$ 200
Total	$ 399	$1328

Digital Versus Film



PRO: Low cost, quick and simple, convenient
CON: Pixelated images, inaccurate colors, fragile
STEPS REQUIRED: 4



PRO: Significantly sharper image quality
CON: Time-consuming, high recurring costs, inconvenient
STEPS REQUIRED: 11

Speedy Steps or Sharper Results?

INFOGRAPHIC: SANDRA KELCH

Loc... and remo...

Grab the case with both hands and remove it. Avoid damaging any parts.

Locate the memory sockets (they may be under the power supply).

... any wires ...at may be

Gently insert memory into appropriate slot ensuring that it is seated properly.

Locate cache sockets. You may have to clear additional wires or expansion cards.

Gently insert cache into ... ensuring that it is seated properly.

...nect and remove the ... positioned on ...

Configure jumpers or dipswitches to modify CPU bus speed. Refer to manufacturer specs.

Check to make sure that CPU is properly indexed before inserting.

Be sure pins on the CPU are properly aligned before inserting into the socket.

Resecure the fan on top of the CPU, making sure to reconnect the wire securely.

...e for internal drive. ...r an external drive cage ... supply.

...the screws of the internal ... or lift the cage

Place the internal drive in the cage.

Place the cage assembly into the chassis.

Resecure the scr...

Resecure any expansion cards you may have removed and push wires back into position.

Resecure the case on the chassis. Make sure not to pinch wires or damage parts.

...it does ...ntire proc...

We've taken some unconventional steps to make our PCs easy to upgrade. Three to be exact.

Remove the left-side quick access panel to add to expansion slots.

Remove the right-side quick access panel to install CPU, cache and RAM.

Pull out hard drive slide, insert drive and close. You're done.

A high-performance PC that literally upgrades in seconds? Without tools? Without training? Either we're kidding, or we're NEXAR. Unlike conventional PCs, the NEXAR PC puts the CPU, cache, memory, hard drive and expansion slots right under your fingers. You don't even take off the cabinet. Just pop the side panels and slide out the hard drive caddy for instant configuration and instant upgrades. It's that simple.

As for performance, the NEXAR PC passes benchmark tests with flying colors. And when it comes time to upgrade, Nexar makes it easy — because the NEXAR PC not only accepts current industry standard components, it's ready for the future because it supports Universal Serial Bus, SDRAM and Pentium® processors with MMX™ technology. Why waste money on a computer without a future? To find out about the NEXAR PC, or obtain a copy of the latest benchmark performance test scores contact NEXAR at the number or web address below. Or contact the nearest NEXAR reseller. And take a few steps toward preserving your computer investment.

Nexar™

The answer to PC obsolescence

intel inside pentium®

182 Turnpike Road, Westborough, MA 01581 • 1-888-NEXAR-PC • http://www.nexarpc.com

© 1997 Nexar Technologies, Inc. All rights reserved. NEXAR and the NEXAR logo are trademarks of Nexar Technologies, Inc. The Intel Inside logo, Intel and Pentium are registered trademarks and MMX is a trademark of Intel Corporation.

Circle 167 on reader service card

PowerShot's controls are also irritating. It isn't tricky to add a sound bite to a frame or change flash intensity, but getting the camera to shoot at its highest resolution is like cracking a safe—turn a dial, press two pairs of buttons, then pick an obscure acronym, CWR. We used this camera's manual more than any other's. The close-up mode gets you within 4 inches of objects, but when you look through the viewfinder, you can't determine what's in focus.

We did like Canon's intuitive TWAIN software. After we locked the camera to its download/recharge station and connected a parallel cable to our PC, it poured the images onto the hard disk faster than did any of the other cameras (which all use serial cables). And we also appreciated the full version of Ulead's PhotoImpact 3.0—arguably the most capable image editor bundled with any of these cameras.

Pick this camera only if picture quality is paramount. And if you plan to share the PowerShot 600 with your coworkers, they'll need a crash course (or two) on using it. *Canon Computer Systems, Inc., 800/848-4123, http://www.ccsi.canon.com*

READER SERVICE NO. 781

CASIO QV-10APLUS

PRO: Color LCD screen, compact design, high storage capacity, video output

CON: Poor picture quality, low resolution, no flash, short battery life

The $399 Casio QV-10Aplus has some cool features; too bad picture quality isn't one of them. Our sample images were blurred by chunky pixels, no doubt due to the camera's low 480 by 240 resolution.

Who should buy the QV-10Aplus? Someone who wants quick, simple snapshots and isn't picky about picture quality. The camera is almost as light as the Kodak DC20 and slips into a coat pocket easily. A handy 1.8-inch color LCD screen on the back lets you compose and review your shots on the spot. You can also display images on a TV or record them with a VCR. The camera's close-up mode lets you photograph objects as near as 4 inches. We also like the way the lens pivots 270 degrees, so you can take a self-portrait or nab a candid moment. Unfortunately, to use the camera you must have the LCD screen turned on. That means you'll need to pop in a lot of AA batteries; we had ▶

New Cameras Digital Evolution

AS WE WROTE THIS ARTICLE, eight more pocket-size digital cameras were announced. Here's the skinny on what's coming.

■ The new **Casio QV-100** ($649) and **QV-300** ($699) are nearly identical: 4MB of internal RAM should store up to 192 images at 320 by 240, or 64 images at 640 by 480. The QV-300 has a bigger 2.5-inch LCD screen in back; the QV-100's is 1.8 inches. Casio, 800/962-2746, http://www.casio.com

READER SERVICE NO. 787

■ At first glance, the $699 **Fujifilm DS-7 Digital Camera** looks like a miniature version of the Canon PowerShot 600, plus it's got a built-in 1.8-inch LCD screen in back. The DS-7's 2MB of memory should store 30 images at 640 by 480. For $75 extra, a stamp-size 2MB memory card can double the camera's storage. Fuji Photo Film USA, Inc., 800/378-3854, http://www.fujifilm.com

READER SERVICE NO. 788

■ The $499 **Epson PhotoPC 500** is an inch less wide than our Best Buy Epson, holds 30 images at 640 by 480, and has a port for an optional 1.8-inch color LCD screen ($199). Epson America, Inc., 800/ 289-3776, http://www.epson-usa.com

■ The $699 **Kodak DC25** camera sports a 1.6-inch LCD screen in back and a flash, but it can grab only 29 shots at 320 by 240. Eastman Kodak Co., 800/235-6325, http://www.kodak.com

READER SERVICE NO. 789

■ The **Minolta Dimâge V** fits in your palm, sports a 1.8-inch LCD screen on the back, and has a 2.7X zoom lens. A 3-foot cable detaches the lens from the camera body, so you can grab images in tight spaces (up to 40 at 640 by 480). Pricing should be under $1000. Minolta Corp., 201/825-4000, http://www.minoltausa.com

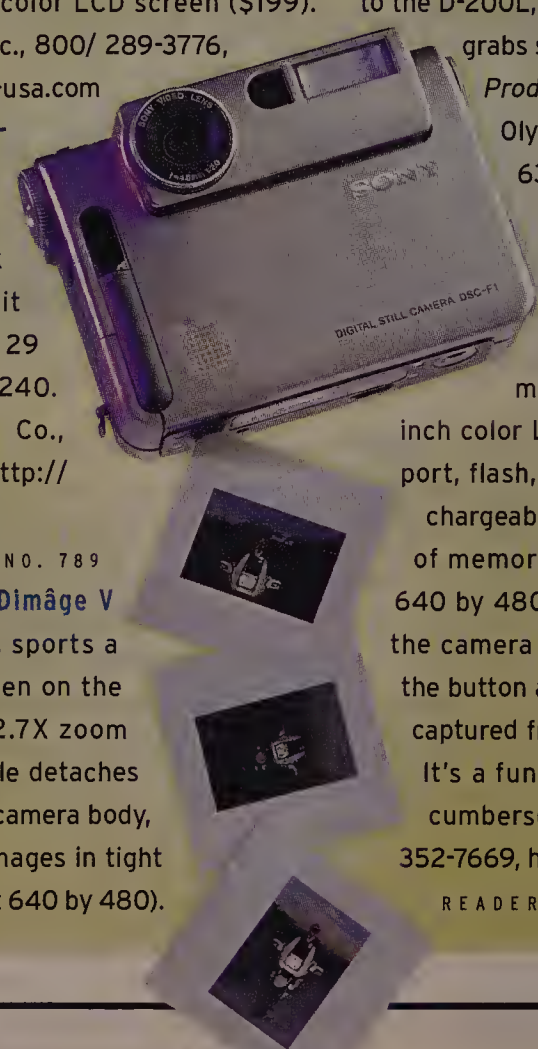
READER SERVICE NO. 790

■ The $899 **Olympus D-300L** looks identical to the D-200L, our Best Buy, but this version grabs shots at 1024 by 768 (see *New Products* in this issue for a review). Olympus America, Inc., 800/622-6372, http://www.olympus.com

READER SERVICE NO. 791

■ We spent some time using a beta version of the $849 **Sony DSC-F1**. The Walkman-size camera sports a 1.8-inch color LCD screen, wireless infrared port, flash, pivoting 35mm lens, and rechargeable lithium ion battery. Its 4MB of memory holds up to 108 images at 640 by 480, and in Time-machine mode the camera records continuously—touch the button and you can retrieve an image captured from a full second beforehand. It's a fun camera, but the menus are cumbersome. Sony Electronics, 800/352-7669, http://www.sony.com/image

READER SERVICE NO. 792



SIMPLETOON™

EXPLORE!

BEYOND THE BROWSER

CREATE ANIMATIONS THAT ESCAPE THE BROWSER AND EXPLORE THE DESKTOP
WE'LL SHOW YOU HOW!!!!!!!!!

SIMPLETOON.COM

AN IDVMedia™ ENABLED TECHNOLOGY

Circle 177 on reader service card

to find a fresh set after less than 2 hours of picture-taking. *Casio, 800/962-2746, http://www.casio.com*

READER SERVICE NO. 782

EPSON PHOTOPC

PRO: Colorful pictures, inexpensive, easy to use, add-on lenses

CON: Low storage capacity, slow downloads, expensive memory upgrade, heavy, no LCD screen

Good picture quality, simple design, and a low price earn the $399 Epson PhotoPC our budget Best Buy. It's an affordable choice for any home or office that needs good digital photos. The shots we took had close to the same vibrant color quality as those from the more expensive Agfa and Olympus models.

The PhotoPC has the same shape and feel as a point-and-shoot film camera. The control panel on top is much like the Agfa ePhoto 307's and provides a quick overview of the camera's settings and status levels. The PhotoPC is one of the few cameras we reviewed with a lens that lets you attach accessories such as filters or a wide-angle lens.

With only 1MB of internal memory, the PhotoPC doesn't hold many shots—16 at 640 by 480, or 32 if you go down to 320 by 240. If you need to shoot lots of pictures, you can capture between 40 and 80 images by upgrading the storage capacity with 2MB ($199) or 4MB ($299) memory modules. Travelers should note that the PhotoPC weighs a hefty 27 ounces, and it is nearly as big as Canon's camera.

At an average of 20 seconds per shot, getting the PhotoPC's images onto our PC's hard drive was not very fast. But the Storm Technology EasyPhoto software makes the process easy and has plenty of tools for editing digital snapshots.

Pick the Epson if cost is more important to you than picture quality and capacity. It doesn't have the built-in color LCD screen that the Best Buy Olympus has, but it costs $200 less. *Epson America, Inc., 800/289-3776, http://www.epson-usa.com*

Kodak DC20, DC40, DC50

KODAK DC20

PRO: Lowest price in review, compact, easy to use, battery life nearly 8 hours

CON: Low-quality images, inaccurate color, no control panel, slow downloads, no LCD screen

Kodak's DC20 is a low-end, inexpensive camera that's about the size of a deck of cards and weighs only 4.2 ounces. At $199, it's by far the lowest-priced camera we reviewed. But other than small size and long battery life, there's not much to recommend it. It holds only eight images at its peak resolution of just 493 by 373, and our sample shots suffered from overexposure, poor focus, and serious color shifts. You can take 16 shots at a lower resolution (320 by 240), but the image quality is even worse.

Instead of a control panel, the DC20 has three lights to indicate whether the power is on, the camera is busy, or the memory is full. Its Erase button is precariously close to the on/off button. If you accidentally press the wrong button when switching off the camera, you'll lose all your shots. Downloading images was painfully slow—30 seconds per image on average. We suggest you look elsewhere. *Eastman Kodak Co., 800/235-6325, http://www.kodak.com*

READER SERVICE NO. 783

TEST REPORT

Apple Lives Longest, Shoots Most

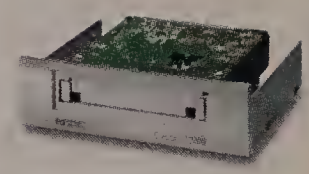
DIGITAL CAMERAS	Battery life (Shorter ◀ ▶ Longer)	Pictures taken	Avg. download time (seconds per image)	Battery type
Agfa ePhoto 307		252	6	alkaline
Apple QuickTake 150		1136	14	lithium
Canon PowerShot 600		72	5[1]	NiCd
Casio QV-10Aplus		158	10[2]	alkaline
Epson PhotoPC*		538	20	alkaline
Kodak DC20		762	30[3]	lithium
Kodak DC40		192	13[4]	alkaline
Kodak DC50		238	29[4]	alkaline
Olympus D-200L*		280	19	alkaline
Ricoh RDC-2		351	23	alkaline

* Best Buy Hours 0 1 2 3 4 5 6 7 8 9

[1]At 832 by 608. [2]At 480 by 240. [3]At 493 by 373. [4]At 756 by 504.

HOW WE TEST Battery life: We used regular AA alkaline batteries, unless the camera operates only with its own proprietary battery. Under controlled lighting conditions, we took ten flash pictures, then ten without flash, and repeated these steps until the batteries were exhausted. Pictures taken: We tallied the images during a single battery life. Average download time: We calculated the average time per image for downloading six images at 640 by 480 resolution (or closest) to a Pentium-133 PC with 16MB of RAM. Kodak's DC20 time is based on its five-image limit. We did not time image download from PC Cards.

It's your business.
Who would you trust to back you up?



Introducing the new HP Colorado T3000 Tape Drive.

- Up to 3.2 GB* capacity at an affordable price
- Industry-leading reliability for complete confidence
- One-Button Backup makes it quick and easy

HEWLETT® PACKARD

If you were to take stock of all the information stored on your PC, you'd soon realize how vital it is to your business. What if one day all that information vanished? Accidents happen. Theft, fire, floods, computer failure or human error can result in a devastating loss of data. The cost of rebuilding that data can be massive and often impossible. Few businesses survive it.

Regular backups using a reliable HP Colorado tape backup system are your best insurance that, should disaster strike, you're back up and running in minutes.

With award-winning Colorado Backup for Windows 95 software included in every HP Colorado drive, data protection simply doesn't get any easier. And nothing is more reliable. What could be more important than that?

Your business depends on your data. You can depend on HP Colorado to look after your data. Visit your dealer or call **1-800-826-4111 ext. 2011** for more information. HP Colorado Tape Storage. A store you can trust.

Designed for Microsoft Windows 95

*Maximum capacity using 2:1 data compression

KODAK DC40 AND DC50

PRO: High-resolution images, DC40 downloads images quickly, DC50 has auto-focus zoom lens and accepts PC Cards

CON: No LCD screen, DC50 has poor battery life and slow downloads, user manual only on CD

The Kodak DC40 ($599) and DC50 ($865) are suitable for mobile workers—real estate agents or insurance adjusters, for example—who routinely take lots of pictures in the field. If you've ever handled a video camera, you'll have no trouble using the DC40 or DC50. Using the control panel on the back, it's easy to change flash intensity and exposure. It's also easy to erase images, check the battery status, and see how many shots are left. Two buttons on top of the DC50 let you adjust its built-in wide-angle and 3X zoom lenses; the DC50's control panel shows information on the lenses and PC Card.

Although both the DC40 and the DC50 take decent pictures at 756 by 504, the colors look flat, and the flash is sometimes too intense. The DC50 gives you the option to compress images as good, better, and best. On the other hand, the DC50 holds only up to 22 shots, compared to 99 with the DC40. The DC50 can use an optional 4MB PC Card ($230) along with its 1MB of internal memory; this lets you take up to 100 photos at its highest image quality.

Both Canon cameras use PhotoEnhancer for downloading and editing images. While the DC40 was fairly quick at transferring images to our PC—just 13 seconds per shot—the DC50 took a sluggish 29 seconds per image. Of course, if you have a notebook you can simply pop in the DC50's optional PC Card and open the images.

We also noticed that the DC50's autofocus zoom lens takes a toll on battery life—it lasted a little over 2 hours, compared to almost 3 hours for the DC40. What's missing from both cameras is an LCD screen, which would help you see which exposures from a photo session work best. *Eastman Kodak Co., 800/235-6325, http://www.kodak.com*

READER SERVICE NO. 784

OLYMPUS D-200L

PRO: Good picture quality, sleek design, color LCD screen, red-eye flash reduction

CON: Can't upgrade storage capacity, bundled image editor opens only one shot at a time

Overall, the $599 Olympus D-200L is our favorite digital camera. Its intuitive design, integrated features, and the crisp, attractive color images it produces earn it a Best Buy. At first glance, it's easy to mistake it for a film camera. It looks and feels like that trusty point-and-shoot you pull out for family photos. Just peer through the viewfinder and press the shutter button.

Olympus D-200L (rear view)

The Olympus D-200L's impressive design includes a 1.8-inch color LCD screen, which lets you compose and review shots. Unlike the Casio, this camera works with its LCD screen turned off, and this conserves battery life—you can use the optical viewfinder to compose shots. With four AA alkaline batteries, the D-200L can take pictures for about 2.5 hours—that's still a bit short.

The D-200L consistently produces fine pictures that have a nice blend of sharpness, contrast, and brightness. Its 2MB of internal memory stores 20 high-quality shots (640 by 480) or 80 standard-quality shots (320 by 240). Downloading images took 19 seconds per shot on average. One disappointment is that the bundled Adobe PhotoDeluxe opens only one shot at a time.

Unless you need high-resolution images, the Olympus D-200L is a reliable camera for nearly any digital photo task. Its 640-by-480 shots are good looking. Add to that a smart design with an LCD screen, and this Best Buy makes it easy to capture digital shots, pronto. *Olympus America, Inc., 800/622-6372, http://www.olympus.com/digital*

READER SERVICE NO. 785

RICOH RDC-2

PRO: High-resolution images, color LCD screen, dual lens position, records sound, accepts PC Cards for extra storage

CON: Flawed picture quality, no TWAIN driver, expensive, slow downloads

We had high hopes while using the $999 Ricoh RDC-2, but we were disappointed when we downloaded the results. Pictures were sharp and properly exposed, but we noticed faint pixel distortion across each image and thin white lines along two edges of each shot. We tested a second RDC-2 and the pixels were less distracting, but the white lines were there.

Downloading images was slow (23 seconds per image), and the camera works only with its ArtSoft image editor, which doesn't support the TWAIN standard. All in all, the RDC-2 is solidly built, simple to use, and relatively light (11 ounces). Its 2MB of memory stores from 9 to 38 high-resolution (768 by 576) pictures, depending on which compression level you choose. You can send images to video, stamp dates on pictures, and even record sound bites. The camera's detachable 1.8-inch color LCD screen sports a built-in speaker and lets you capture sound bites, so you can hear comments you've recorded about an image.

Ricoh also offers add-ons: a $20 remote control and a $309 10MB PC Card that holds 52 to 210 shots. If Ricoh can solve its image-quality problem, we think the RDC-2 would be a nice camera. *Ricoh, 800/225-1899, http://www.ricohcpg.com*

READER SERVICE NO. 786 ■

Ricoh RDC-2

SEND FOR FREE CATALOG!

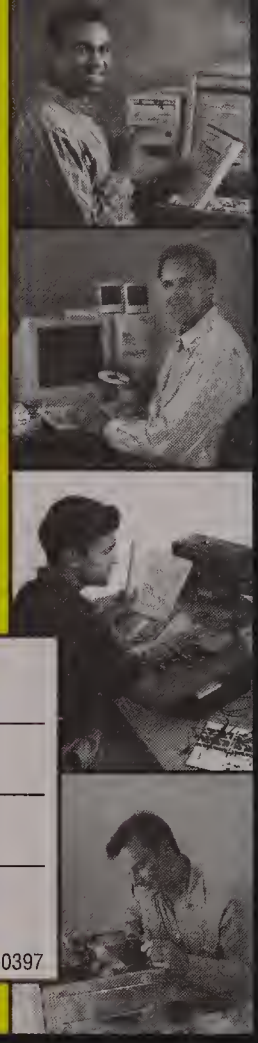
☑ **Check one FREE career catalog only.**

High school diploma or GED recommended for all courses, required for degree programs.

- ❑ **Microcomputer Servicing**
- ❑ Industrial Electronics & Robotics
- ❑ TV/Video/Audio Servicing
- ❑ Basic Electronics
- ❑ Networking with Windows NT
- ❑ Computer-Aided Drafting
- ❑ Electronic Music Technology
- ❑ Computer Programming
- ❑ Telecommunications
- ❑ Multimedia Programming
- ❑ Desktop Publishing with PageMaker
- ❑ PC Applications Specialist
- ❑ Computer-Based Bookkeeping
- ❑ Visual Programming in C++
- ❑ Mastering Microsoft Office
- ❑ Webmaster
- ❑ Air Conditioning/Refrigeration/Heating
- ❑ Electrician
- ❑ Building Construction
- ❑ Home Inspection
- ❑ Auto Servicing
- ❑ Paralegal
- ❑ Writing

OR GET YOUR DEGREE!

- ❑ **New! AAS Degree in Accounting**
- ❑ **New! AAS Degree in Business Management**



Name *(Please Print)* Age

Street *(No P.O. Box numbers please)*

City State Zip

A Division of The McGraw-Hill Companies

Accredited Member, Distance Education and Training Council

0141-0397

For career courses approved under G.I. Bill, ❑ check for details

CARD E

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO 10008 WASHINGTON, D.C.

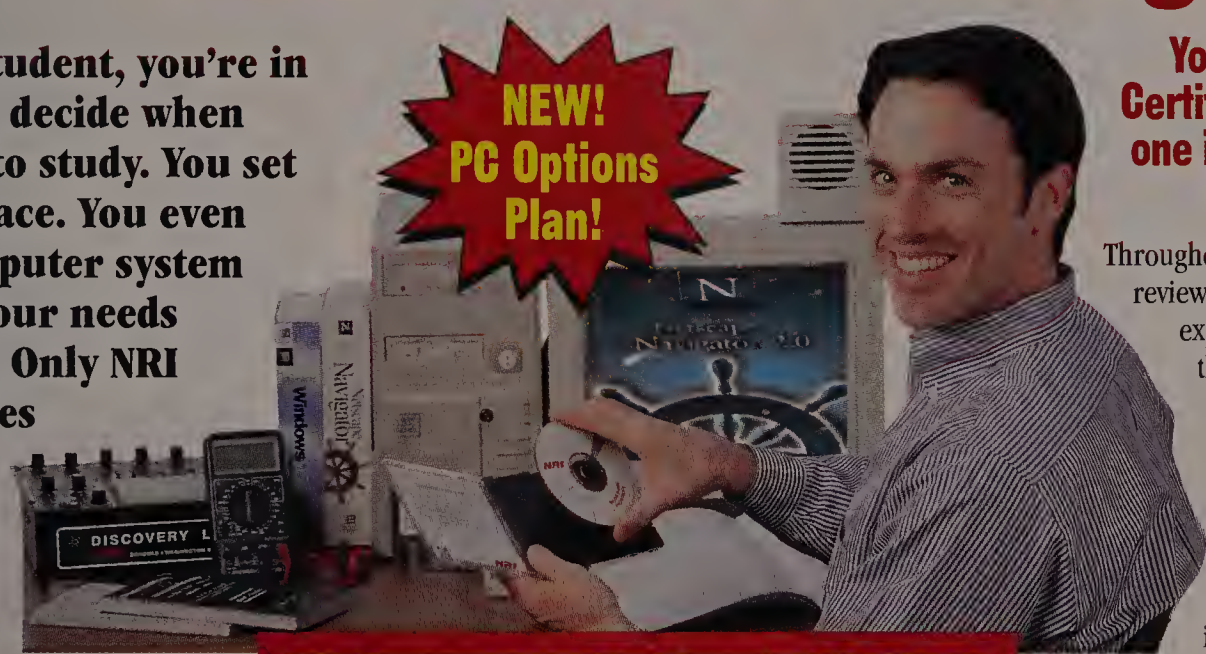
POSTAGE WILL BE PAID BY ADDRESSEE

NRI Schools
4401 CONNECTICUT AVENUE NW
WASHINGTON DC 20078-3543

Studies show that jobs for computer service technicians will be up by 38% in the next 10 years!

Prepare for today's opportunities in computer service with NRI's flexible, state-of-the-art training

As an NRI student, you're in charge. You decide when and where to study. You set your own pace. You even build a computer system that suits your needs and budget. Only NRI training gives you the control you want, the expertise you need!



With a combination of step-by-step lessons and hands-on training projects, NRI builds your skills and confidence quickly. You begin with an exploration of electronics and move on to such cutting-edge subjects as virus protection, multimedia troubleshooting, PC communications, Local Area Networks, and more.

Best of all, you get the top-notch computer and diagnostics you need to put theory into practice — and start earning while you learn!

You train with and keep the exact computer you want

Understanding that technology changes rapidly, NRI has just created its unique PC Options Plan. When you're due to receive your Pentium® processor-based system, you're given options based on future developments in technology. You may choose the Pentium® 166 system described here or purchase selected upgrades at special student rates. It's our state-of-the-art guarantee!

No matter what PC features you prefer, you'll get the software and diagnostics respected throughout the industry: Windows 95, Netscape Navigator™, and the self-booting ForeFront Troubleshooter™ diagnostic package. No school gives you more!

YOU GET EVERYTHING YOU NEED FOR SUCCESS

- **PENTIUM® 166 PC** Features 16 meg RAM, 256K cache memory, and 1.6 gigabyte hard drive for exceptional data storage capacity and data access speed
- **SUPER VGA COLOR MONITOR** Plus 1 meg video memory
- **EXCITING MULTIMEDIA PERIPHERALS** 8X CD-ROM drive, 16-bit sound card, and stereo speakers
- **FAX/MODEM** 28,800 baud for fast communications, plus Netscape Navigator™ Web browser and ten free hours of America Online
- **DIAGNOSTIC PACKAGE** The portable ForeFront Troubleshooter™ software and CD-ROM for quick detection of system and multimedia failures
- **NRI DISCOVERY LAB** Complete breadboarding system to design and modify circuits, diagnose and repair faults
- **DIGITAL MULTIMETER** Professional, hand-held test instrument for quick and easy measurements
- **WINDOWS 95** Today's popular, time-saving operating system
- **CD-ROM TUTORIAL** Easy prep for A+ Certification!

You prepare for A+ Certification with one-on-one instruction and NRI's CD-ROM tutorial

Throughout your course, your work is reviewed and evaluated by your experienced instructor. So even though you're studying at home, you're never alone. You can reach your instructor by mail, phone, fax, or modem.

That's right! With NRI's exclusive Online Connection you can chat with your instructor, attend online seminars, get the answers to frequently asked questions, download supplemental materials, find out about changes in technology, and more.

As the culmination of your training, you receive NRI's interactive CD-ROM with tutorials related to the A+ Certification exam. In no time at all, you'll have the skills, experience, and confidence you need to sit for the A+ exam and take advantage of the booming opportunities in computer service. Just think — everyone with a computer is a potential client!

FREE CATALOG!
1-800-321-4634, Ext. 2360
Visit our Home Page at http://www.mhcec.com

SEND TODAY FOR FREE NRI CATALOG!

NRI Schools
4401 Connecticut Avenue, NW, Washington, DC 20008

OR GET YOUR DEGREE!
- ☐ AAS Degree in Accounting
- ☐ AAS Degree in Business Management

☑ **Check one FREE catalog only. High school diploma or GED recommended for all courses, required for degree programs.**

- ☐ **MICROCOMPUTER SERVICING**
- ☐ Computer Programming
- ☐ TV/Video/Audio Servicing
- ☐ Desktop Publishing with PageMaker
- ☐ PC Applications Specialist
- ☐ Networking with Windows NT
- ☐ Bookkeeping and Accounting
- ☐ Visual Programming in C++
- ☐ Mastering Microsoft Office
- ☐ Webmaster

Name (please print) Age

Address

City State Zip

A Division of The McGraw-Hill Companies

Accredited Member, Distance Education and Training Council

0141-0397

If you're very lucky, there will be a few moments in your career when the people who really matter think you're an absolute genius. And if you're about to upgrade to computers with Pentium® Pro processors and convert your company to Windows NT®, the next such moment could be arriving sooner than you expected. That is, if you make the extraordinarily brilliant, wunderkind-like decision to choose the AST® Bravo MS-T Pro.

The power everyone wants.

The Bravo MS-T Pro comes with amazing technology like the Matrox Millennium graphics card. And with the Pentium® Pro processor, it's a breeze to run popular business programs—in 16 or 32 bit format—up to 64% faster than you run them now. To enhance productivity even more, there's AST-IntraAccess™ complete Intranet/Internet software.

Amazing technology. Amazingly affordable.

$1,999*. (Sorry if we shocked you.) That's close to a thousand do less than many comparable competitive models. Which means can have exactly what you want, and a lot more of it than you thou Business should be this easy.

Don't expect the usual service. Expect more.

To prove how eager we are to keep you happy, AST ExpressServ provides the fastest, most flexible service around. We'll usually ans your call in a minute or less. And if you need parts, we can de them in a day. For a reseller near you call us at **800-876-4AST** or **www.ast.com**. We'd be happy to answer your questions about AST Bravo MS-T Pro. And more than happy to welcome you abo

* Estimated selling price, monitor not included. Actual price may vary. Contact resellers for details. ©1996 AST Research, Inc. AST is a registered trademark. AST Computer, the AST logo, AST-CommandCenter, AST-IntraAccess and AST ExpressService and "Where Things are Happening" are trademarks of AST R

The $10,000,000 client.

The guy who brought in the $10,000,000 client.

The guy who chose the AST® Bravo computers with Pentium® Pro processors and Windows NT®.

For a free copy of our IDC white paper, "Successfully Migrating to Next Generation PCs", call us at 1-800-447-0023, ext. 100.

180 and 200 MHz Pentium® Pro processors, Matrox Millennium graphics with 2 MB WRAM upgradeable to 8MB, 8X CD-ROM, Intel EtherExpress™ Pro 10/100 PCI adapter on select models, Microsoft Windows NT® Workstation 4.0, AST-CommandCenter™, AST-IntraAccess.™

AST® COMPUTER

Where things are HAPPENING™

Pentium and the Intel Inside logo are registered trademarks and the Pentium Pro processor logo is a trademark of Intel Corporation. All other products or services mentioned herein may be trademarks or registered trademarks of their respective owners. Information subject to change without notice

Circle 6 on reader service card

In the time it takes your 28.8 modem to download this page...

x2 Downloads Nearly Twice As Fast

Introducing x2 Technology from U.S. Robotics. A revolutionary breakthrough in analog modem design that lets you download at nearly twice the speed of today's 28.8 modems.

By cutting the time you spend waiting for downloads virtually in half, x2 fundamentally changes the face of online communication.

x2 Technology Is Available Today

Any Sportster 33.6 modem purchased after August 15, 1996 is software upgradable to x2. Or you can find the Sportster that's right for you, with x2 capabilities already built in, on store shelves today.

Either way, you can start downloading nearly twice as fast with more than 100 Internet service providers supporting x2 Technology.

Building a Standard for 56 Kbps

U.S. Robotics has a long history of supporting international communications standards. And, while the ITU-T committee has not yet recommended a standard for 56 Kbps modems, we

USRobotics®

©1996 U.S. Robotics. All rights reserved. U.S. Robotics, the USRobotics logo and Sportster are registered trademarks and x2 and the x2 logo are trademarks of U.S. Robotics. Product specifications subject to change without notice. Contact your U.S. Robotics representative for current product information.

...a Sportster® with x2™ Technology could download both.

are working closely with them to create one. Whatever standard is eventually established, U.S. Robotics will offer the easiest possible upgrade path.

Supported By Industry Leaders

x2 is already being supported by major chipset makers and original equipment manufacturers, as well as online services with more than 16 million subscribers. With widespread acceptance and deployment from such industry leaders as America Online, CompuServe and NETCOM, it's easy to see why x2 is setting the pace for online speed.

x2: The Right Choice For Speed

U.S. Robotics connects more people online than anyone else. Now, with x2 Technology we offer one more reason why we're the world's #1 maker of modems.

To learn more about x2, visit us at www.usr.com/x2 or give us a call at 1-800-525-USR1.

And don't wait a minute longer than necessary.

U.S. Robotics

TECHNOLOGY.

America Online · CompuServe · IBM · MCI · NETCOM · prodigy internet · Texas Instruments · DELL

LOTUS SMARTSUITE 97

Now smart Enough?

EDITED BY JOANNE ROBB

At long last, with a 32-bit version of 1-2-3, SmartSuite is completely Windows 95 savvy. Our first take on the new version? It's a strong second to Office 97.

WITH SMARTSUITE 96, you had to ask yourself the question: Is the glass half empty or half full? While a partial upgrade to Windows 95 is better than none, Lotus's decision to leave 1-2-3 and Organizer in their Windows 3.1 versions made SmartSuite 96 unnecessarily hard to learn and use. To make matters worse, it was poky. Word Pro, an otherwise promising new application, took three times longer to perform some tasks than Microsoft Word. In our last look at SmartSuite in May 1996, we recommended that users go with Microsoft's Office 95.

SmartSuite 97 overcomes most of the suite's initial growing pains. With 1-2-3 and Organizer now in the Windows 95 fold, gone is the confusing mix of interfaces. Although we didn't have a shipping version to test formally for this review, SmartSuite 97 also seems much faster than before. For SmartSuite diehards, the suite's complete conversion to Windows 95 is alone worth the price of the $149 upgrade.

But is it worth switching to SmartSuite 97 from Office? When our reviewers had finished banging on the final beta, we had our answer: Office is still the better suite. In our review of the beta version of Office 97 last month, we found that it continues to have overall the best major business applications, particularly Word and Excel. That said, if SmartSuite 97 comes with your new PC or if you're a current SmartSuite user, there's no reason to throw it out and start over with a suite you don't know. SmartSuite 97 is not only an important upgrade in many respects for current users, it makes a good showing in features, speed, and special tools for Internet access. ▶

ILLUSTRATIONS BY PHILIP ANDERSON

Any of the three major suites on the market today—the $399 SmartSuite 97, the $499 Office 97, and Corel's $395 WordPerfect Suite 7—are good buys. In one box you get just about all the applications you should ever need to run a small business or home office. The number and quality of programs you get for your money is pretty amazing, considering that only a few years ago just one major app might cost as much as a suite does now.

TIME TO UPGRADE

USERS OF 1-2-3 and Freelance Graphics —SmartSuite's spreadsheet and presentation graphics programs—will be most impressed with this upgraded suite. The new 1-2-3 benefits enormously from the addition of Lotus's InfoBox, which is already present in other SmartSuite applications. A floating, interactive dialog box, the 1-2-3 InfoBox turns the most arcane spreadsheet tasks into clear, easy-to-apply choices. 1-2-3 is now easier to use than Excel and nearly as powerful. The Windows 95 upgrade of Freelance isn't as dramatic, but it's still the best presentation graphics package available and the only SmartSuite application that tops its Microsoft counterpart, hands down.

SmartSuite also remains the teamwork expert. By incorporating group editing into 1-2-3 and working tightly with Lotus Notes, SmartSuite is the best suite for people who need to work together on documents, spreadsheets, and presentations.

LIVE FEEDS FROM THE INTERNET

FOR PUBLISHING TO and accessing the Internet, we'd say SmartSuite—which incorporates some unique tools—now ranks as the second best, after Office. For example, SmartCenter, SmartSuite's desktop management utility, organizes URLs for quick access to favorite Internet sites.

SmartSuite is fairly easy to learn, but Office is easier, especially for higher-end tasks. For instance, Office's Access has a Table Analyzer Wizard that suggests how to divide a large table into a group of smaller ones. Typical of SmartSuite, however, when you divide tables in Approach, you have to rely on the on-screen help and your own intuition. Of all Lotus's applications, only Freelance Graphics handles difficult jobs better.

SmartSuite could make it a little easier to accomplish the simpler stuff, too. For instance, you can't just create a global style in a Word Pro document; you first have to set up a document, then create and save the style. And call us picky, but the SmartSuite thesaurus could use some consciousness raising: When you type in "man," it gives you several synonyms. When you type in "woman," you get an error message. Sometimes it's just the little irritations that set the suites apart.

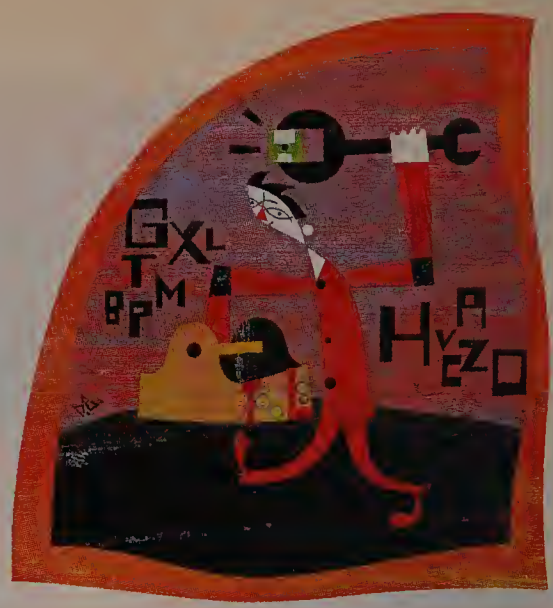
NO SHAME IN SECOND BEST

NOW THAT IT HAS acceptable speed and all its applications are compatible with Windows 95, SmartSuite has a real chance of success. We had trouble getting a few of the features in the beta version to work properly, but Lotus said these problems would be fixed in the final product.

Once we've received and checked out a shipping version of SmartSuite 97, we'll post the results of our timed speed tests on our Web site. You can find them at http://www.pcworld.com/mar97/suite. Look for our review of version 8 of Corel's WordPerfect Suite in an upcoming issue.

Application for Application: Are They Worth the Upgrade?

Application/ upgrade price	Is it worth the upgrade?	Is it better than Office 97?	Comments
Word Pro 97 $105	Yes	No	Word Pro 97 is faster and more stable than the previous version, but it's still not as thoughtfully designed as Word 97.
1-2-3 97 $105	Definitely!	No	With InfoBoxes, 1-2-3 takes the lead in spreadsheet ease of use, but it still lacks Excel's power.
Freelance Graphics 97 $105	Probably	Yes	Freelance has always been the best presentation product; if you want to publish to the Web, make the upgrade. Though Microsoft's PowerPoint has some good features, it still can't compete.
Approach 97 $105	Probably not	No	This is a minor upgrade, geared mainly to people who create Approach databases. If you're buying for the first time, Access's tools are still more powerful.
Organizer 97 $49	Yes	It depends	Though Outlook is best if you want very tight integration into the suite, Organizer is the best stand-alone PIM.



WORD PRO 97

Better Performance and the Best Workgroup Tools

By George Campbell

What's Hot

Improved Web tools; linked frames

What's Not

No equivalent to Word's Web wizards; confusing menus

WORD PRO 97 gets a "B" for effort. Lotus has done a nice job of smoothing the kinks out of the latest version of this Ami Pro replacement and adding a few new features. Current users should definitely upgrade. But overall, Word Pro is not dramatically improved. Its workgroup tools are still the best of any word processor, but Word 97 remains the better program.

Some of Word Pro 97's refinements may seem minor, but they make the program much easier to use. While Word Pro 96 was slow and crash-prone, this upgrade is faster and seems to perform better. Document loading times and transitions between the regular and the page sorter view, for instance, were faster. It seemed more stable, too. Word Pro 96 had all kinds of annoying problems: The hourglass was missing so you never knew if the program was responding, and video conflicts often caused crashes. Unlike Word Pro 96, the new version doesn't feel as if it's about to break; it behaves the way a program should.

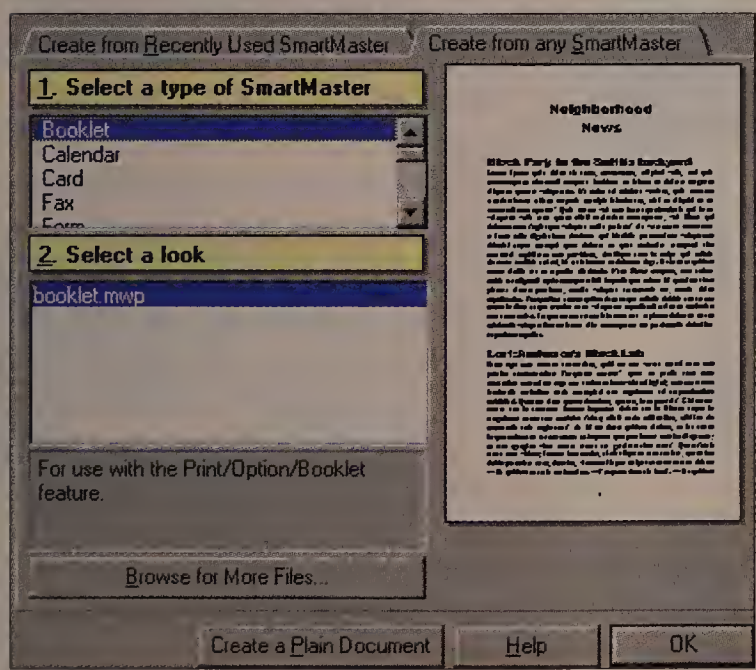
If you're new to Word Pro, you'll appreciate the tools it provides for easing the transition from Word and WordPerfect. Lotus wasted no time in providing filters for all the latest word processors, so you

can convert dozens of formats to Word Pro 97. To make the transition from another word processor, Word Pro's SwitchKits have also been improved to help you learn Word Pro's menus. However, the SwitchKits still aren't as easy to use as Word's real-time command translation for WordPerfect, which teaches you Word as you simultaneously use WordPerfect commands.

GOOD NEWS FOR DESKTOP PUBLISHERS

WORD PRO 97 offers some helpful new tools for people who like to use their word processors for publishing projects. The most important improvement is that you can now link frames, which are containers for text and graphics that can be moved or formatted independently. If you're creating a newsletter, for example, linked frames would allow you to automatically flow text from a frame on the first page to a frame on the third page. Word, which calls its frames text boxes, also allows you to flow text, but its frames aren't nearly as flexible. For example, unlike Word Pro, Word doesn't let you put multiple columns in a single frame.

Like WordPerfect, Word Pro now lets you create and print folded booklets. The template for this task was still clearly in beta code: I had some trouble printing the booklet correctly. Still, I have to give Lotus credit. Word 97 doesn't include any tools for booklet making, and WordPerfect's tools are overly complicated.



WORD PRO 97 SMARTMASTER templates help you create almost any type of document, including folded booklets.

THE WEB AND OTHER GROUP WORK

THE FIRST VERSION of Word Pro had some Web tools; with them, you could open files from the Internet and even convert work into HTML format, but you couldn't easily post documents to a server. This upgrade, though, gives you all the tools you'll need to create and maintain Web pages. It adds Web tools in a SmartIcon toolbar and allows you to create an HTML document rather than just converting existing ones. You can also use Word Pro to fetch documents from the Internet: Just type the address into the HTML toolbar, and the page appears as an editable document in Word Pro. Word Pro also has a small set of well-designed SmartMaster templates that make it easy to create interactive forms for a Web site. However, Word's Web Page Wizard is still the best tool for design, because it leads you through the process of choosing and using the best template.

Setting up a complex workgroup project is still easier in Word Pro than in any other word processor: For instance, you can set access levels and workgroup limitations without help from IS. Tight links to Notes make it easy for Notes users to distribute group documents.

WHICH WORD PROCESSOR WINS?

WORD PRO STILL lags behind Word 97 in some areas. It doesn't include the same comprehensive automation: For example, Word Pro's grammar checker doesn't work as you type. Worse—it's not installed automatically, so if you want it, you have to run a custom installation.

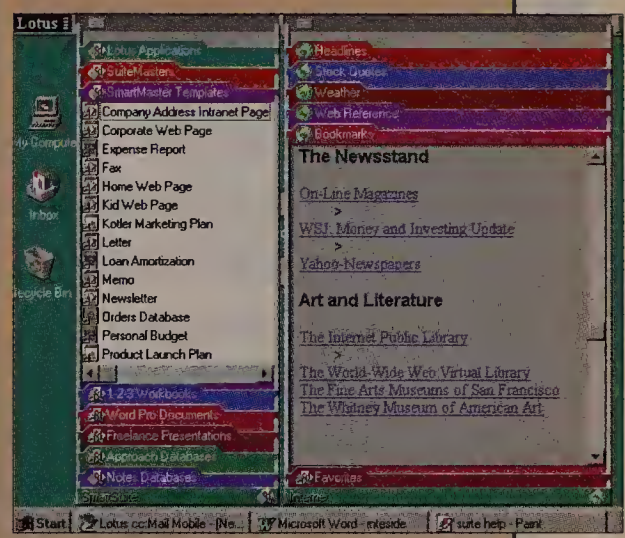
Two groups will benefit from this updated version of Word Pro: current users who want improved performance and workgroup leaders who need project control. For Word and WordPerfect users, though, there is little reason to switch and learn a new program: While Word Pro is a good word processor, only its workgroup tools are standard setters. ▶

INTERNET TOOLS

SmartSuite Offers Smart Browsing

By Peter Scisco

THE INTERNET CAN BE a valuable ally, both for finding and disseminating information. Though Office 97 generally has the best tools for using the Internet,



THE SMARTCENTER has single-click access to a host of files, including your favorite Web sites.

SmartSuite has features that earn it honorable mention.

Among suites, SmartSuite takes an unique approach to retrieving and organizing crucial Internet information. The Internet drawer on the SmartCenter toolbar, for instance, stores your Explorer favorites and Navigator bookmarks, gives you access to Internet indexes and directories, and lets you receive updated stock quotes and local weather reports directly on your desktop, using a proprietary minibrowser.

Nifty features aren't confined to the SmartCenter, though. In any SmartSuite document, except in Organizer, you can highlight text—say, the words *PC World*—and click the *Perform Internet Search* icon; SmartSuite launches your browser and does a search on the selected term.

Without a doubt, SmartSuite 97 makes it easier to browse the World Wide Web. With the SmartCenter tools and the ability to search selected text in SmartSuite applications, you have one-click access to information on the Internet that's relevant to your work.

1-2-3 97

A New Interface Makes Spreadsheets Easier

By Richard Scoville

What's Hot

InfoBoxes; total function automatically builds sums

What's Not

OLE links to Approach are cumbersome; still missing essential features found in Excel and Quattro Pro

A BREAKTHROUGH interface innovation and a host of new features make the first Windows 95 version of Lotus 1-2-3 an attractive upgrade, and perhaps the easiest-to-use spreadsheet. For power spreadsheet users, it's still no match for Excel, but for average users, 1-2-3 97 is a viable alternative. In fact, it now leapfrogs over Quattro Pro into second place.

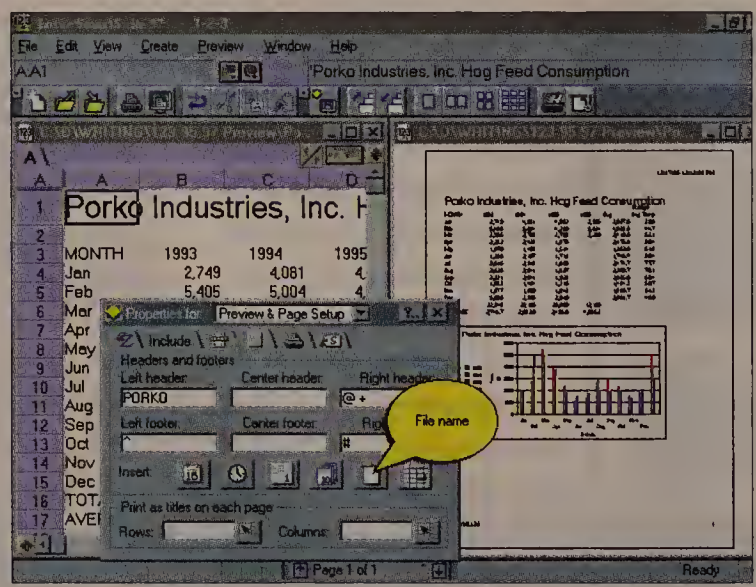
INFOBOXES: DIALOGS DONE RIGHT

AN INTERFACE is a funny thing. Small changes can turn an incomprehensible widget into a really cool tool. Remember how no one but UNIX geeks could navigate the Internet before Mosaic came along? For years, designers have come up with tricks to make spreadsheets easier to use, but as programs became festooned with features, even the easiest interfaces became cluttered and confusing. 1-2-3's InfoBoxes may change all that.

Lotus's unique InfoBoxes—which made their appearance in other SmartSuite 96 applications, but are only now part of 1-2-3—are pop-up, context-sensitive, tabbed dialog boxes that let you change properties in real time. Suppose you've just created a new chart. As you click on parts of the graph, the InfoBox shows the name of the selected object and all of its properties. Dialog tabs lead to choices for fonts, colors, tick marks, axis scaling, and so on. And the InfoBox's context sensitivity never gets confusing: You can change only features you're directly working on. Because your selections take effect immediately, you can swiftly adjust the properties of the object until you get the effect you want.

Other pleasing enhancements bring 1-2-3 up to speed with competitors. As you already could in both Excel and Quattro Pro, you can now set worksheet titles with the mouse and edit cells within the titles area. And even easier than an AutoSum feature, you can now create sums for a table of data simply by typing the word **TOTAL** in the next row or column.

For more skilled users, though, many infuriating shortcomings remain: You still can't paste a set of numbers into discontinuous ranges. And when you print a report using page titles, you have to select a print range that doesn't overlap the column and row you've set for the titles.



1-2-3's PRINT PREVIEW FUNCTION IS REALLY UNIQUE: use the InfoBox to adjust the page setting and see the changes immediately in the Preview window.

OLE OR OH, BROTHER?

ALTHOUGH 1-2-3's interface-lift and improved tools make it attractive to ▶

SMARTSUITE INTEGRATION

Tighter Across the Board

By Cathy Kenny

SMARTSUITE 96 was something of an embarrassment: Certainly, no other vendor has ever lumped programs based on two different operating systems together in one box and called it an integrated suite. By upgrading 1-2-3 and Organizer to Windows 95, SmartSuite 97 takes care of the old version's biggest integration problem.

All the applications now sport a similar menu structure and similar toolbars. The status bar provides comparable functionality in each application. And all the programs now use InfoBoxes—Lotus's innovative all-in-one formatting tool—as well as the LotusScript programming language. In addition, SmartSuite is the only suite that includes comprehensive desktop management tools: SmartCenter acts as a warehouse for storing documents and applications and as a location where you can easily manage your schedule and address book. It also has a Reference drawer, which provides single-click access to the dictionary and thesaurus and a Suite Help drawer, which provides help on how to use the applications together.

Despite these improvements, though, SmartSuite's integration capabilities trail behind those of Microsoft Office, which includes features like Binder that lets you collect multiple documents in one place. Also, despite SmartCenter's Suite Help, we would like a universal help system, rather than the disparate help systems found in each application. In addition, SmartSuite needs to get up to speed when creating cross-application documents: While Corel's QuickTasks walk you through the process of creating such documents, in SmartSuite you have to fumble through the Suite Help to find the information you need.

Though SmartSuite 97's integration is more tightly knit than before, Lotus still has a few hurdles to overcome before they are truly well integrated.

Don't Get Caught In the ZIP...

540 Big MBytes per Disk

Catch Nomai, the smartest thing to come along in removable storage for the PC. The Nomai 540 is:

3 Times Faster Than ZIP 100

- **Fast** - 3X faster than a Zip® 100 drive for both access time and data transfer rate.
- **Flexible** - only Nomai can use two types of 3½"media. Either Nomai 540 MByte disks or SyQuest® compatible 270 MByte disks. Now available in internal & external for SCSI or external parallel.
- **Fantastic** - at just 11 cents per MByte, it's nearly half the cost of Zip media per MByte.

Also Uses 270MByte Disks

Use your Nomai 540 for:

- transporting almost any size file in your pocket
- Internet file downloads
- unlimited extension of your hard drive
- backup & archiving

Catch Nomai, the faster, smarter choice in removable hard disk storage.

NEW LOW PRICE!

NOMAI™

www.nomai.com

Microsoft® Windows®95 Compatible

Mac OS

NOW $299* with 540MB Disk Included!

*Price for external parallel port version after manufacturer's mail-in rebate. Price before rebate $349. Rebate offer expires 3-15-97.

Mail Order:

TigerDirect 800-888-4437

PC Connection 800-800-5555

PC Mall 800-863-3282

The PC Zone 800-416-9663 NOW!

Superstores:

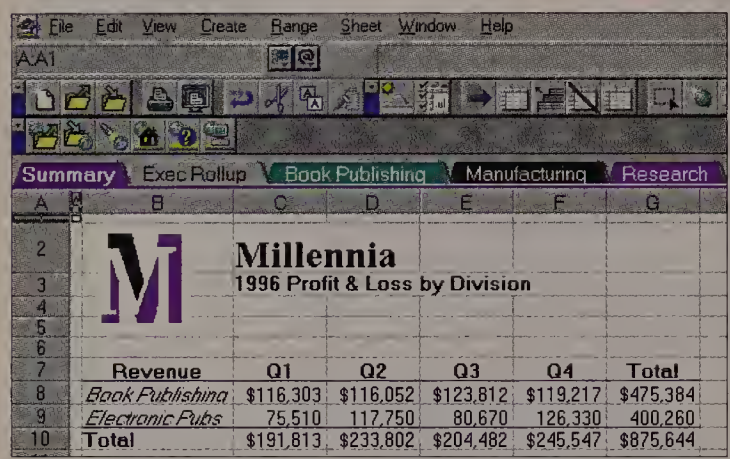
COMPUSA THE COMPUTER SUPERSTORE 1-800-COMPUSA

NCA Computer Products Your Computer Usegrace SUPERMARKET 1-800-961-1200

NOMAI USA Tollfree **1-888-99-NOMAI**. Call for distributor and reseller opportunities. All trademarks are properties of their respective companies. 27GDA

Circle 161 on reader service card

occasional spreadsheet users and novices, it still trails Excel in power features. For one thing, sharing database data with the spreadsheet actually has become harder. Lotus seems to think that OLE links to Approach are now the best way to bring in database information, which is particularly odd since even Microsoft has passed over OLE in favor of Excel's Autofilter feature. The innovative database query objects that appeared in releases 4 and 5 have been supplanted by a kludgy embedded Approach query view. It's slow, and using the data returned by the query is very cumbersome. What's more, 1-2-3 still relies on an OLE link to Approach for cross-tab reports; with that method, you can't even reference the data in formulas.



IN 1-2-3, CREATING TOTALS is even easier than an AutoSum button: Just type TOTAL, and the numbers fill in.

As Excel has shown for several years now, automatic subtotals and outlines are a handy, no-sweat way to prepare summary reports from a spreadsheet database. As a good student of a good product, 1-2-3 now includes an outline feature that lets you collapse rows or columns so you can view or print selected summary data. Unfortunately, this outline tool lacks an automatic subtotal feature like Excel's, making outline setup an awkward, one-group-at-a-time process.

The really big news for advanced users and dedicated Lotus shops is LotusScript, a Visual Basic–like programming language that is comparable to Microsoft's VBA. A special script-editor window features an object browser for looking up object properties and command syntax, a full set of debugging tools, and a separate dialog box editor. Trained programmers will welcome this kind of power, but they will also find that their applications are constrained by the inherent limitations of 1-2-3's object model, which doesn't allow them to identify objects easily.

SHARING SPREADSHEET DATA

IN KEEPING WITH Lotus's push to sell Notes to the corporate world, the new 1-2-3 sports a host of ways to integrate spreadsheet data into Notes databases. And the workgroup tools allow a Notes shop to interactively share individual workbook pages via a Notes database. Say the group puts expense forms into a database that then feeds into a budget summary sheet; as they input data, the budget summary would be updated dynamically.

Like Quattro Pro and Excel, 1-2-3 now offers a bevy of Web features. You can, for instance, save a workbook to an FTP site. And you can save a worksheet range as an HTML table without setting up a separate workbook as in either Excel or Quattro Pro—handy for Web site builders.

UPGRADING GETS THE THUMBS UP

EXCEL STILL leads the pack when it comes to features for intermediate and advanced users. But for ease of use, 1-2-3 97, with its InfoBoxes and other interface improvements, is second to none. And its tight Notes integration makes it a natural for committed Notes organizations. On balance, the new 1-2-3 takes a giant step toward making spreadsheeting easier and more intuitive. For current 1-2-3 users, 1-2-3 97 is a must.

FREELANCE GRAPHICS 97

The Best Gets Better

By Cathy Kenny

What's Hot

Additional multimedia-enhanced SmartMasters; improved Web publishing tools; ability to run remote presentations in multiple locations

What's Not

Setting up screen shows takes work; multimedia special effects more difficult to find than in PowerPoint

DESPITE STEADY improvements in Microsoft's PowerPoint, Freelance Graphics will hang on to its title of best presentation graphics package for a while longer. PowerPoint 97 is getting closer to seriously competing with Freelance, with additions like its animation toolbar and easy screen-show transition effects. But Freelance 97 maintains a healthy lead with enhancements such as useful new SmartMaster templates, better Internet publishing capabilities, and other ▶

ScreenCam 97

Your Computer Will Be in Movies

By JoAnne Robb

READY! AIM! CLICK! With SmartSuite's nifty little ScreenCam application, you can record minimovies of your cursor cruising through any application you have open. True to the cooperative-computing theme of the suite, ScreenCam 97 now lets you provide these demonstrations over the Internet, your intranet, or even e-mail. If end users don't have ScreenCam, you can save your files as executables so anyone can view them.

But ScreenCam is also fun. You can rearrange segments at will, record your voice with the movie, or—to save space—add captions. Though the copycat Camcorder in Microsoft's Office 97 is similar in look, feel, and functionality to ScreenCam, the original is still the best: While you can save your ScreenCam movies as bulky AVI files, Lotus also has a proprietary format that runs well on lower-end systems. Microsoft—less considerate of your PC's limitations—lets you save your files in AVI format only.

RDC-2

BEST OF BYTE COMDEX Fall 98
FINALIST

Hear what you see.

Capture images with sound

Capture images in motion

multimedia digital camera

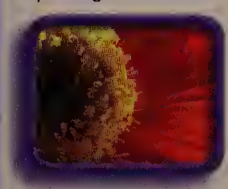
RDC-2 Digital Camera with optional flip-up LCD monitor.

Easy to hold yet small enough to fit in your shirt pocket.

Five ways to capture

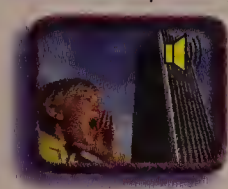
High Resolution, Sharpness and Color Accuracy...

That's what you need to capture a quality image with a digital camera. The RDC-2's advanced design supports these requirements, as well as offering exciting features that let you go beyond just taking stills. Now you can bring your images to life by capturing the movements and sounds of your subjects.



Still Mode captures high res images in vivid 24-bit color. Exclusive macro capability lets you take pictures as close as 1cm away.

Document Mode utilizes a sharpening filter to capture razor-sharp images of text and graphics.



Still with Sound Mode allows you to take a picture while recording 10 seconds of digital sound.

Sound Mode uses the RDC-2's built-in microphone to record pure digital sound in 8-bit, 11kHz WAVE file format.

Continuous Shooting records the movements of your subject in 1 second intervals. Play back as *QuickTime* or *AVI* files. (Requires use of PC cards to transfer data to your computer.)

- **High Resolution 768 x 576 Pixel Images** captured in 24-bit color utilizing a 410,000 pixel CCD.
- **2MB Built-In Memory** stores up to 38 images in economy mode.
- **PC Memory Card** support lets you store hundreds of images
- **Dual Lens Design** utilizes a wide-angle 35mm and telephoto 55mm lens, as well as macro optics for close-up photography.
- **LCD Monitor** (optional) allows you to view images before and after you capture them.
- **Fully Automatic Features** like Autoflash, Autofocus, and Autoexposure make picture taking effortless.

Visit us at:
www.ricohcpg.com

RICOH®

RICOH CORPORATION • 475 Lillard Drive • Sparks, Nevada 89434 • Tel 702.352.1600 • FAX 702.352.1615

Circle 204 on reader service card

improvements aimed at making presentation delivery a less stressful affair.

BRAND NEW LOOKS

FREELANCE HAS ALWAYS had a wider selection of presentation templates than either PowerPoint or Corel Presentations. This version adds 14 new templates, for a total of 130 different looks. Eleven have built-in multimedia special effects, so you can whip up screen flashes and sound effects. It's still easier to choose a template in PowerPoint, though. Finding the look you want in Freelance can be overwhelming since all the templates are lumped together in a single listing.

FREELANCE OFFERS SUPPORT for frames when publishing to the Web. Also, each slide's title appears along the left side of your screen for easier navigation.

As any veteran speaker knows, you can't keep your cool during a presentation unless you have your notes close by. Freelance 97 comes to the rescue—its index card–style speaker notes now hold an unlimited amount of text. Unfortunately, Freelance's speaker notes feature doesn't have an Undo command, so you have to be careful when editing your notes.

The TeamShow feature introduced in Freelance 96 let you run a screen show in one remote location; Freelance 97 provides support for running a screen show at multiple sites, so Human Resources could inform both the Seattle and Boston offices about the new benefits package. Freelance lets you run the show in a number of different ways: over the Internet, via your local area network, or by direct connection. The presenter chooses *Send* and the people watching the show click *Receive*. If the recipients don't have Freelance, they can download the mobile screen-show player from Lotus's site. Although PowerPoint also has remote presentation abilities, they are more limited. With Freelance, you can have speaker notes appear only on the presenter's machine so the audience can't read them.

FREELANCE DOES THE WEB

FREELANCE 96 introduced tools for publishing presentations to the Web, but the process required that you search through menus to find the needed tools. In Freelance 97, Web publishing couldn't be easier. You simply select the *Publish to Internet* command and Freelance takes care of the rest. Freelance now supports frames, so when you publish a presentation to the Web, the title of each slide and your speaker notes are displayed on the left side of your screen. If you want to bring the Web to your presentations instead, just attach a URL to any object in your show. To launch the Web site you click on the object. And in keeping with Lotus's workgroup tools, the program is more tightly integrated with Notes, so you can open presentations from and save them to a Notes database.

WORTH THE UPGRADE

IF YOU'RE A DEVOTED PowerPoint or Corel Presentations user, you're probably better off sticking with what you know. But if you're already using Freelance Graphics 96, upgrading to Freelance 97 is a good idea, especially if you want to make your presentations available on the Web. Freelance is not only the best presentation product on the market, but its single-step Web publishing feature is easier to use than PowerPoint's multiscreen wizards. Buying your first presentation product? Even if you don't care about Web publishing, you should still pick Freelance for its selection of templates and limitless speaker notes, among other good features. As an all-around presentation graphics package, Freelance is still the best.

APPROACH 97

Small Changes for Database Designers

By Celeste Robinson

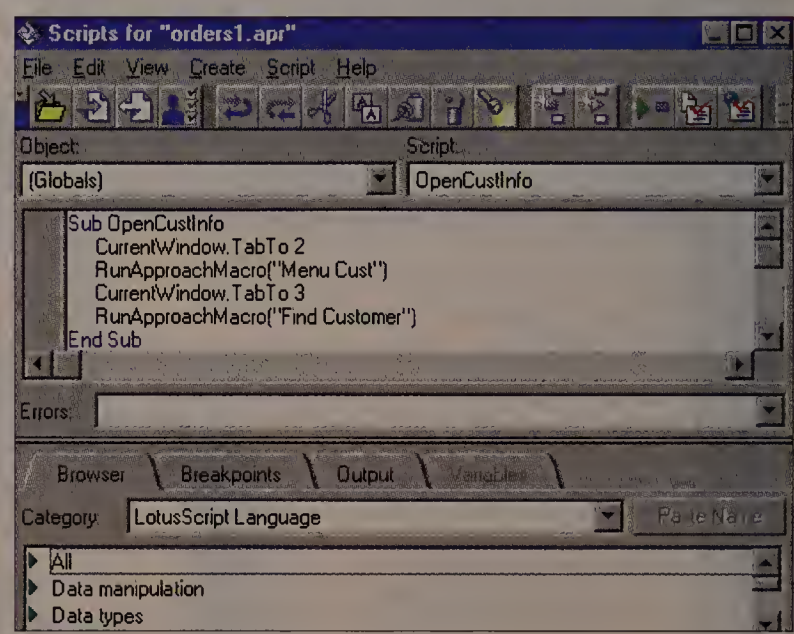
What's Hot

New automation tool to record macros; easier to manage custom styles for design objects

What's Not

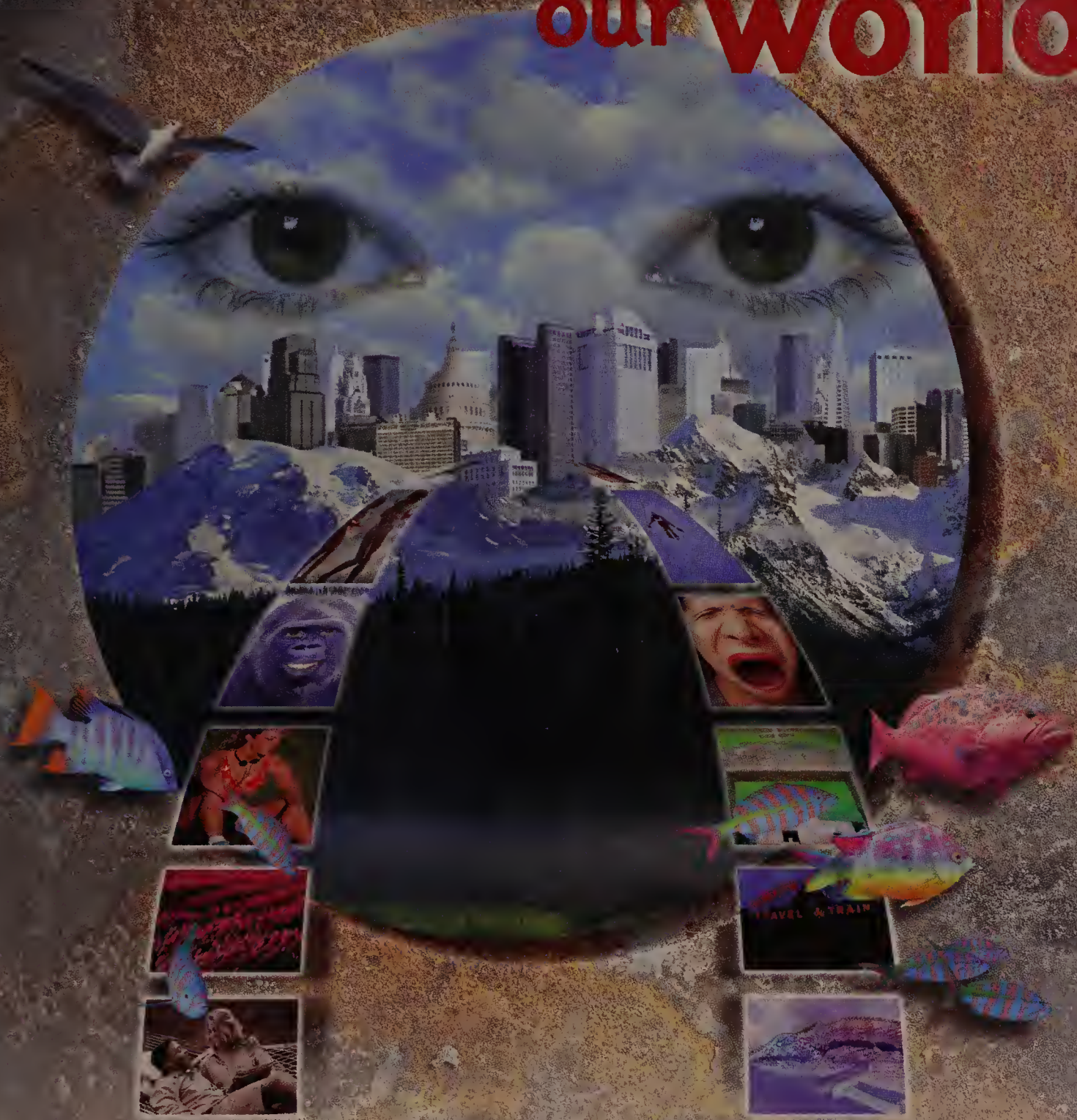
Not as many helpers as Access; new features helpful only for designers, not average users

ALTHOUGH APPROACH has always billed itself as an end-user application, the new features in Approach 97 are really for those who do the down-and-dirty design work. A relatively minor upgrade, this new version lets you publish data to the Internet, record keystrokes to automate tasks, and manage styles for design objects. If you're a database designer, you'll appreciate these additions. But if you're a casual user of Approach or ▶



EASY AS ONE, TWO, THREE: This script is an example of what you can do with Approach 97's new macro recording feature.

Look into our world.

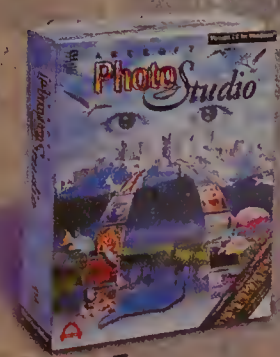


Ricoh did. They loved what they saw.

"Deluxe" and "Suite" image editing programs are way too limiting. Arcsoft's PhotoStudio® is the complete photo editing tool for your home and office. See for yourself why Ricoh® chose Arcsoft's PhotoStudio® for their award-winning Ricoh RDC-1 and RDC-2 digital cameras.

Image Editing Software for professionals and novices.

- 32-bit image editing.
- Point-and-click application.
- Tons of special effects filters.
- Color correction tools.
- ArcSoft's exclusive Album Manager.



ARCSOFT PhotoStudio®

World Wide Web homepage: http://www.arcsoft.com

ArcSoft™

ArcSoft, Inc. 4015 Clipper Court, Fremont, CA 94538 • (510) 440.9901 (800) 762.8657 Fax (510) 440.1270

Circle 8 on reader service card

use Access or Paradox, these new features are not enough to warrant a switch.

I like now being able to record my actions as I perform tasks, especially since neither Access nor Paradox incorporates this capability. With this feature, I created a macro to open my database to the correct form without pointing and clicking through a macro builder or writing code. And the tools were easy: I built my macro without using the help files.

In addition, Approach now includes a tab for Named Styles in the InfoBox. This lets you create and change your styles for design objects easily, instead of digging through menus. Although Approach was the last of the three suite databases to add this feature, it's done the best job of keeping things simple. In Access the location of the Style tools isn't at all obvious, and in Paradox I had to use the help files to do the job properly.

Approach 97 leapfrogs over Paradox and joins ranks with Access 97 by adding an Internet toolbar. You can use it to publish any of the various Approach views—a form, report, or chart—to the Internet, or open or save them as Internet documents. But the Net tools are otherwise disappointing: Unlike Access 97, there is no step-by-step wizard to help create Web publications or ready-made HTML templates for formatting Web pages.

Overall, I'd say Approach 97 is a worthwhile upgrade only for people who create Approach applications, for folks who want to publish Approach data to the Web, or for users who design their own macros.

ORGANIZER 97

PIM Gets Up to Windows 95 Speed

By Peter Scisco

What's Hot

Ability to edit documents from inside Organizer; Web calendar for Internet group scheduling

What's Not

No direct Internet access; doesn't share all SmartSuite tools

ORGANIZER HAS always been easy to like. Its notebook-planner metaphor is familiar and easy to learn. Ever since SmartSuite 96 shipped with the old Windows 3.1 version of Organizer, I've been eager to see how Lotus would improve this personal information manager.

Some of the biggest changes in Organizer are designed for people who live inside their PIM: For instance, you can link your Organizer file with the SmartCenter Addresses and Calendar drawers for instant access to your schedule. Another substantial improvement comes in Notepad. With its OLE 2.0 support, you can now embed any OLE-supported objects in the Notepad and edit them without stepping outside of your PIM, which is a convenient way to keep track of documents. Despite OLE support, though, Organizer's automatic tracking tools don't equal those in Outlook 97, Microsoft's Exchange/Schedule+ replacement; Outlook includes tools like Outlook Find, which lets you search for text in any document you've created in Office.

OLE support will let you track Web sites in the Notepad, but it's a kludgy process. Unlike some PIMs such as Sidekick, the Organizer Notepad doesn't recognize stored URL text as a live link.

Not all of the Internet connections are weak. Using Lotus's free server-based Web Calendar, which comes on the SmartSuite CD, Organizer 97 users can share scheduling information with coworkers. Once Web Calendar is on the company server, employees can access and distribute calendars from within the Windows 95 Internet Explorer 3.0, Navigator 3.0, or over the company intranet.

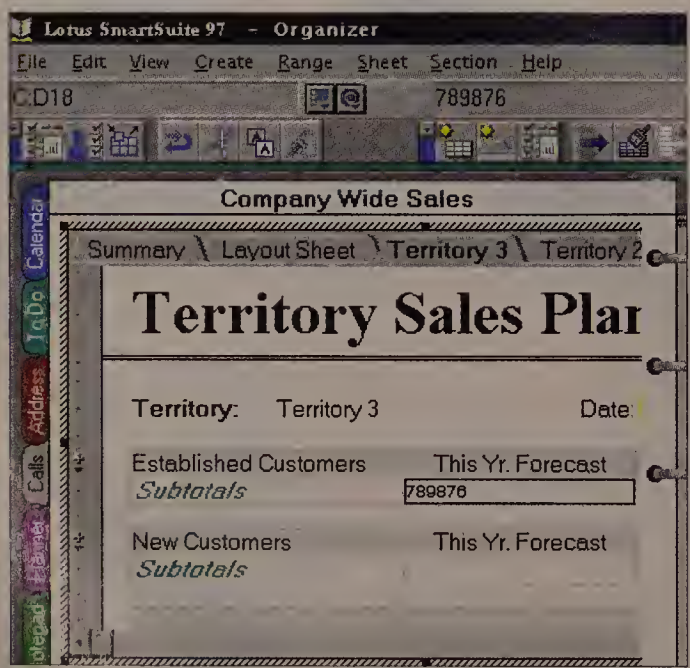
There are other small but important improvements worth noting: The calendar view now displays appointments as colored blocks. And though Organizer now has the Internet toolbar that all the other SmartSuite applications have, it's missing the tool that allows you to run a Web search on highlighted text.

Organizer 97 is certainly better integrated into the suite. The previous version of the PIM wasn't multithreaded, meaning that it would launch Word Pro whenever you started a letter in Organizer, even if the word processor was already running. Though my beta version couldn't recognize open applications, Lotus says this will be fixed in the suite's shipping version.

Overall, Organizer is worth the upgrade. In fact, as a stand-alone PIM, I would definitely choose Organizer over either Sidekick or Outlook. I prefer its notebook metaphor to Sidekick's list-heavy look. Though Outlook is useful if you need tight integration with the other Office applications, in my opinion it's far too rigid and has more features than I need.

Where to Buy

Street price: $399; competitive upgrade $149; Lotus Development Corp., 800/343-4514, http://www.lotus.com



OBJECTS IN ORGANIZER 97'S Notepad can be edited because of new support for OLE.

George Campbell, Celeste Robinson, and Richard Scoville are contributing editors to PC World; *JoAnne Robb is an associate editor. Freelance writers Cathy Kenny and Peter Scisco are frequent contributors.* ■

NOBODY WOULD CONFUSE IT WITH THE NEW MASSIVELY-PARALLEL SUPER COMPUTER. BUT FOR $999* IT KILLS.

WE'RE TALKING SERIOUS BANG FOR THE BUCK HERE. COMPACT. FULL FEATURED. MULTIMEDIA EQUIPPED. INTERNET READY. AND FULLY UPGRADABLE TO 200MHz AND 80MB RAM. THE MONORAIL™ PC IS ONLY THE FIRST OF A LINE THAT'S GOING TO CHANGE ALL THE RULES. FIND OUT MORE AT 1-888-880-7245 OR WWW.MONORAIL.COM THE FUTURE IS COMING. BET ON IT.

Designed for Microsoft Windows 95

Connect with Rockwell

997 Monorail Inc. Monorail is a trademark of Monorail Inc. All other trademarks are the property of their respective owners. *Monorail computers start at $999 MSRP at retailers nationwide. Prices subject to cha

Circle 154 on reader service card

A perfect 10 on the feature scale.

12.1" SUPER VGA ACTIVE MATRIX (11.3" DUAL SCAN OPTIONAL) WITH 64K COLORS

16-BIT FULL DUPLEX STEREO AUDIO SYSTEM

INTEGRATED 10X CD-ROM DRIVE

UP TO 150 MHZ INTEL PENTIUM™ PROCESSOR

HARD DRIVES UP TO 2.1 GB

OPTIONAL INTERNAL 33.6KBPS FAX/MODEM

INTEGRATED 1.44MB FLOPPY DISK DRIVE

6.5 POUNDS

LESS THAN 2" THICK

LONG LIFE BATTERY

Only 6.5 lbs. on a regular scale.

For people who still believe that full-on multimedia notebooks will break your back and budget, Twinhead proudly presents the exciting new Slimnote 9.

For more than a decade, Twinhead has been building computers for some of the biggest names in the business. The new Slimnote 9 is Twinhead's tenth generation mobile system; design and manufacturing experience others can't match. If notebooks are what you are into, Twinhead is truly Two Steps Ahead.™ Plus, every Slimnote is backed by Twinhead's highly acclaimed ExpressCare48 Service program.

- Only 6.5 pounds, including CD, Floppy & Battery
- 10X CD-ROM drive and floppy co-exist
- Long battery life
- 64-bit graphics accelerator with 2Mb of video memory
- ZV-enabled PC Card Slot
- User-installable memory up to 64Mb
- Optional 33.6Kbps internal fax/modem

Call Twinhead today for more information!

Twinhead *Two steps ahead*™

West – Phone: 800-995-8946 • East – Phone: 800-552-8946 • Fax: 408-945-1080
www.twinhead.com

intel inside pentium PROCESSOR

Copyright ©, 1996, Twinhead Corporation, All Rights Reserved. Reproduction without the express written permission of Twinhead Corporation is prohibited. All specifications and configurations subject to change without notice. Twinhead, the Twinhead logo and Slimnote are registered trademarks of Twinhead Corporation. Intel, the Intel Inside Logo and Pentium are registered trademarks of Intel Corporation. All other trademarks acknowledged.

Circle 240 on reader service card

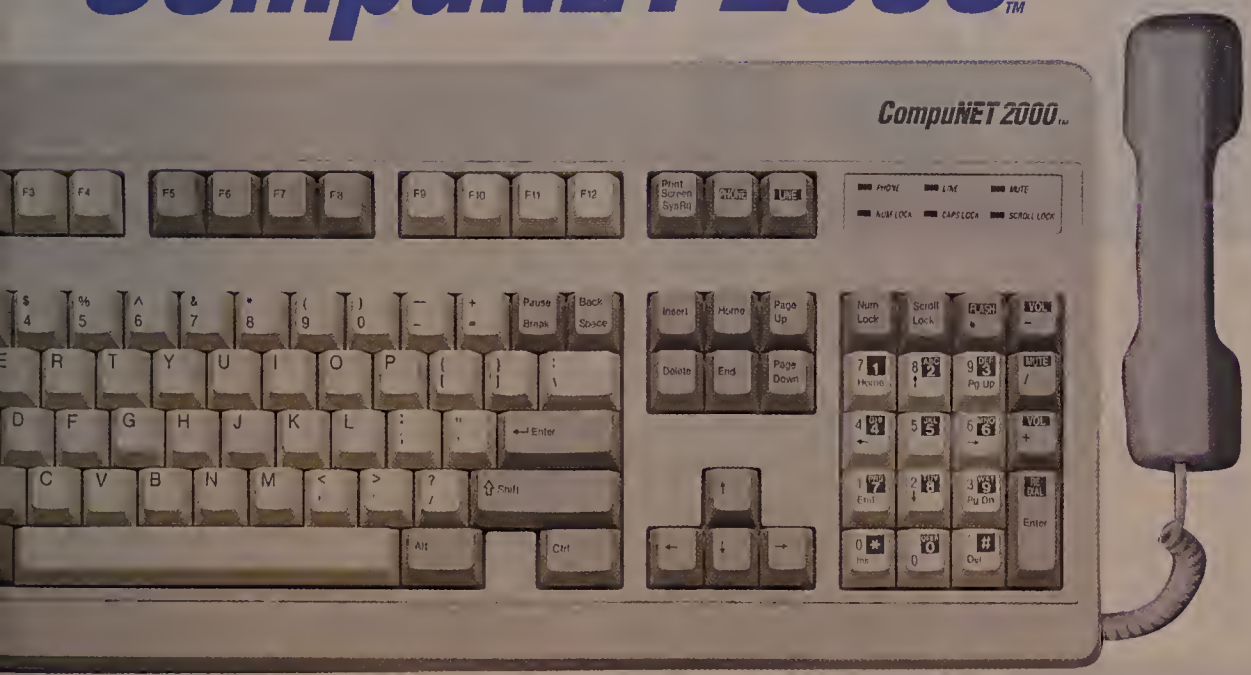
Talk around the world... for the price of a local call.

FREE

Internet PHONE Software

The world's first Internet keyboard telephone

CompuNET 2000™



Increase Productivity

Make and receive Internet phone calls from your PC keyboard.

Make and receive regular phone calls from your PC keyboard.

Conference between Internet phone calls and regular phone calls.

PC® ACCESSORIES

CompuNet 2000 is another innovative product of Integrated Technology USA, Inc.

For more information visit our Web Site at: http: //www.gemini-usa.com

VocalTec and Internet Phone are trademarks of VocalTec Ltd.

Circle 98 on reader service card

CDW CIRCLE OF SERVICE®

DESKTOP POWER & PORT

COMPUTER DISCOUNT WAREHOUSE™

COMPAQ Presario 4770

Compaq takes MMX technology to the max!

Intel's Pentium processor with MMX technology provides a major enhancement to the quality and performance of graphics, video and audio software optimized for MMX instruction sets. Intel has added 57 powerful new instructions to the Pentium processor architecture to speed up certain CPU-intensive tasks in multimedia and communications applications. MMX instructions process multiple data elements in parallel, providing performance benefits from 50% to 400%, depending on the application.

$2299.00
CDW 80030

✔ 200MHz Intel Pentium® processor with MMX™ technology ✔ 32MB SyncDRAM standard, expandable to 80MB ✔ 3.8GB hard disk drive ✔ Internal 16X Max CD-ROM drive ✔ 32-bit PCI accelerated graphics ✔ JBL Pro stereo speakers ✔ 33.6K bps DSVD data/fax/voice modem ✔ Includes Compaq keyboard and mouse ✔ Software: Microsoft® Windows 95, Microsoft Works, Compaq Phone Center, CorelDRAW 5 and more! ✔ 1-year limited warranty

Call CDW for our complete line of Compaq Presarios

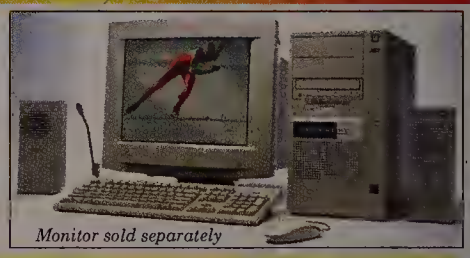
TOSHIBA Infinia 7200 mini-tower

Impressive computing

✔ 200MHz Intel Pentium® processor ✔ 32MB EDO RAM standard, expandable to 128MB ✔ 3.0GB hard disk drive ✔ 8X CD-ROM drive ✔ 28.8K bps data/fax/voice modem (software upgradeable to 33.6K bps) ✔ Speakerphone and digital answering machine ✔ Television/FM stereo capture card provides cable TV reception in stereo ✔ Software: Windows® 95 and more ✔ 1-year limited warranty

$2199.00
CDW 75222

AST Advantage! Series

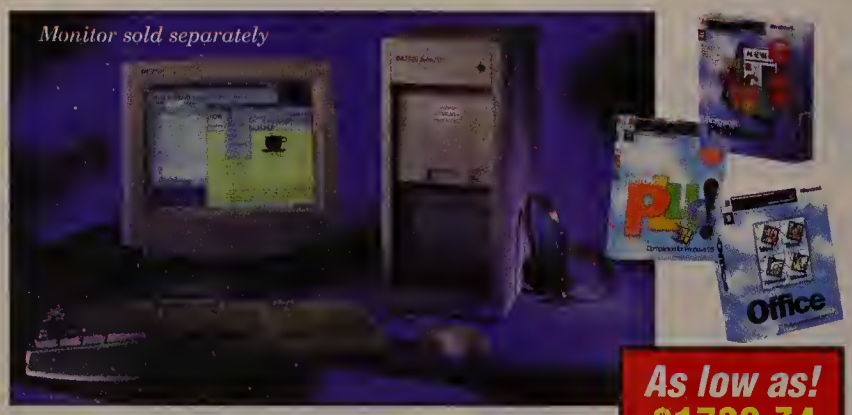


AST Advantage! mini-tower PCs

Model	CPU	RAM	Hard drive	CD-ROM	Modem	Price	CDW
9304	133MHz Pentium	24MB	1.6GB	8X	33.6K bps	$1359.31	71898
9208	166MHz Pentium	16MB	1.6GB	8X	33.6K bps	$1549.87	75071
9308	166MHz Pentium	24MB	2.5GB	8X	33.6K bps	$1647.54	71899
9314	200MHz Pentium	24MB	4GB	8X	33.6K bps	$2009.36	71900

HEWLETT® PACKARD HP Vectra 500 Series PCs

Complete PC solution for small businesses



As low as! $1729.34
CDW 76404

Hewlett Packard Vectra 500 Series PCs Includes a complete suite of Microsoft software!

◆ Windows® 95 with Plus! Companion ◆ Microsoft Office Professional with Bookshelf '95 ◆ Publisher ◆ Internet Explorer ◆ Also includes Microsoft Natural Keyboard and mouse!

Mini-tower	CPU	RAM	Hard drive	CD-ROM	Price	CDW
525CD	133MHz Pentium	16MB	1.2GB	8X	$1729.34	76404
525MCx	133MHz Pentium	16MB	1.2GB	8X	$1905.72	76405
525CD	166MHz Pentium	16MB	1.6GB	8X	$2069.12	76406
525MCx	166MHz Pentium	16MB	1.6GB	8X	$2229.46	77135
525MCx	200MHz Pentium	32MB	2.5GB	8X	$2886.62	77136

IBM Business Partner Aptiva C Series

Touch new worlds of power with IBM's Aptiva—the interactive PC for entertainment, education, communication and productivity

✔ Intel® Pentium® processors: 133MHz (C32, C33), 166MHz (C65), 200MHz (C73) ✔ RAM: 16MB standard, 128MB maximum ✔ Hard disk drives: 1.2GB (C32), 1.6GB (C33), 2GB (C65), 2.5GB (C73) ✔ 6X (C32) or 8X CD-ROM drive ✔ ATI Rage graphics controller with Total Image 3D (C33, C65, C73) ✔ 2MB video memory standard ✔ MPEG-1 video support ✔ Includes stereo speakers and microphone ✔ 28.8K bps data/fax/voice modem with speakerphone capabilities ✔ Keyboard ✔ 2-button mouse ✔ Windows® 95 software ✔ 3-year limited warranty

Aptiva C32 ..... **$1322.13*** CDW 74006
✔ 133MHz Pentium, 1.2GB hard drive, 6X CD-ROM drive

Aptiva C33 ..... **$1524.74*** CDW 73083
✔ 133MHz Pentium, 1.6GB hard drive, 8X CD-ROM drive

Aptiva C65 ..... **$1782.48*** CDW 73084
✔ 166MHz Pentium, 2GB hard drive, 8X CD-ROM drive

Aptiva C73 ..... **$1922.53*** CDW 73085
✔ 200MHz Pentium, 2.5GB hard drive, 8X CD-ROM drive

** After $175.00 instant rebate. Offer ends 2/28/97.*

800-434-4239
www.cdw.com

CDW® sells for less and services you better!™

ABLE CONVENIENCE

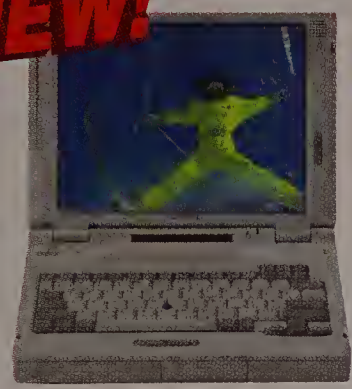
For hundreds of other great CDW values, see our ad in the back of this issue!

CDW CIRCLE OF SERVICE®

COMPUTER DISCOUNT WAREHOUSE™

COMPAQ LTE 5400

NEW!



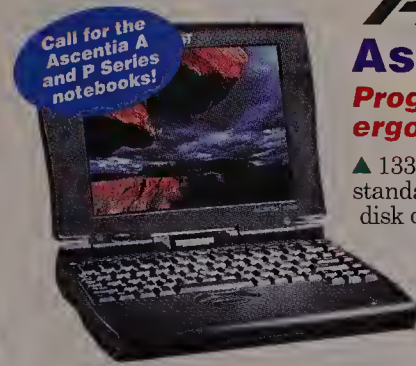
Featuring an innovative modular design for complete flexibility

- 150MHz Intel Pentium® processor
- 32MB RAM standard, expandable to 0MB ▼ 2.16GB hard disk drive
- 1.44MB floppy disk drive ▼ Optional D-ROM drive ▼ 12.1" TFT ctive-matrix color display
- 3-year warranty

$5599.00 CDW 78294

AST Ascentia J50

Call for the Ascentia A and P Series notebooks!



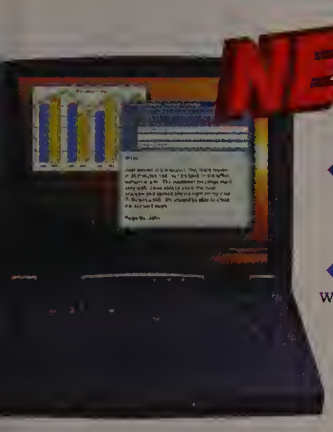
Progressive features and advanced ergonomics—at an agressive price

▲ 133MHz Intel Pentium® processor ▲ 8MB RAM standard, expandable to 40MB ▲ 800MB removable hard disk drive ▲ 1.44MB internal floppy disk drive ▲ 10.4" active-matrix color display ▲ Integrated 14.4K bps data/fax modem ▲ Integrated stereo speakers and microphone ▲ 5.8 lbs. ▲ 3-year limited warranty with 48 hour rapid repair for 1st year

Incredible low price! **$1799.00** CDW 67377

TEXAS INSTRUMENTS Extensa 900

NEW!



A portable powerhouse

◆ 133MHz Intel Pentium® processor ◆ 16MB EDO RAM standard, expandable to 48MB ◆ 1.35GB user-upgradeable hard disk drive ◆ 1.44MB external floppy disk drive ◆ Optional 8X CD-ROM drive interchangeable with floppy disk drive ◆ 12.1" DSTN dual-scan SVGA color display ◆ 5.1 lbs.

$3197.78

CDW 79045

IBM® ThinkPad 365X and 365XD

IBM Business Partner

NEW!

Advanced design, powerful performance

▲ 120MHz or 133MHz Intel Pentium® processor ▲ 8MB RAM standard, expandable to 40MB ▲ 1.08GB hard disk drive ▲ Integrated 4X CD-ROM drive (CDW 68170) ▲ 11.3" dual-scan color display

365XD 120MHz, 4X CD-ROM ..... **$2299.39** CDW 68170

365X 133MHz, optional CD-ROM..... **$2249.08** CDW 74859

TOSHIBA

Tecra 730XCDT

NEW!

Unprecedented performance in a portable PC

◆ 150MHz Intel Pentium® processor with MMX™ technology ◆ 16MB EDO RAM standard, expandable to 144MB ◆ 2GB removable hard drive ◆ 10X CD-ROM drive ◆ 12.1" active-matrix TFT color display ◆ Integrated 28.8K bps (V.34) modem ◆ Telephony features: full duplex speakerphone, telephone answering machine

$5599.79

CDW 80957

Call for Toshiba's Portege 650CT and 660CDT notebooks!

Tecra 740CDT

NEW!

With Noteworthy Video Conferencing kit

◆ 166MHz Intel Pentium® processor with MMX™ technology ◆ 16MB EDO RAM standard, expandable to 144MB ◆ 2GB removable hard drive ◆ 10X CD-ROM drive ◆ 13.3" active-matrix TFT color display ◆ Integrated 28.8K bps (V.34) modem ◆ Telephony features: full duplex speakerphone, telephone answering machine ◆ Noteworthy Video Conferencing kit includes color video camera, CardBus Capture Card and Intel ProShare software

MMX™ intel inside pentium®

$6279.76 CDW 80958

Satellite 200CDS

✔ 100MHz Intel Pentium® processor ✔ 8MB EDO RAM standard, 40MB maximum ✔ 810MB hard drive ✔ 6X CD-ROM drive ✔ 11.3" dual-scan SVGA color display

$1939.64

CDW 77236

Satellite Pro 420CDS and 420CDT

✔ 100MHz Intel Pentium® processor ✔ 8MB EDO RAM standard, 40MB maximum ✔ 810MB (420CDS) or 1.26GB (420CDT) hard drives ✔ Internal 6X CD-ROM drive, swaps with standard 1.44MB floppy drive ✔ 11.3" dual-scan (420CDS) or active-matrix (420CDT) SVGA color display

420CDS **$2149.63** CDW 70245

420CDT **$2868.39** CDW 70246

Satellite 110CS

✔ 100MHz Intel Pentium® processor ✔ 8MB EDO RAM standard, 40MB maximum ✔ 810MB hard disk drive ✔ Integrated 1.44MB floppy disk drive ✔ 11.3" dual-scan SVGA color display

$1499.88

CDW 70247

Satellite Pro 430CDS and 430CDT

✔ 120MHz Intel Pentium® processor ✔ 16MB EDO RAM standard, 48MB maximum ✔ 1.2GB hard drive ✔ 10X CD-ROM drive ✔ 11.3" dual-scan (430CDS) or active-matrix (430CDT) SVGA color display

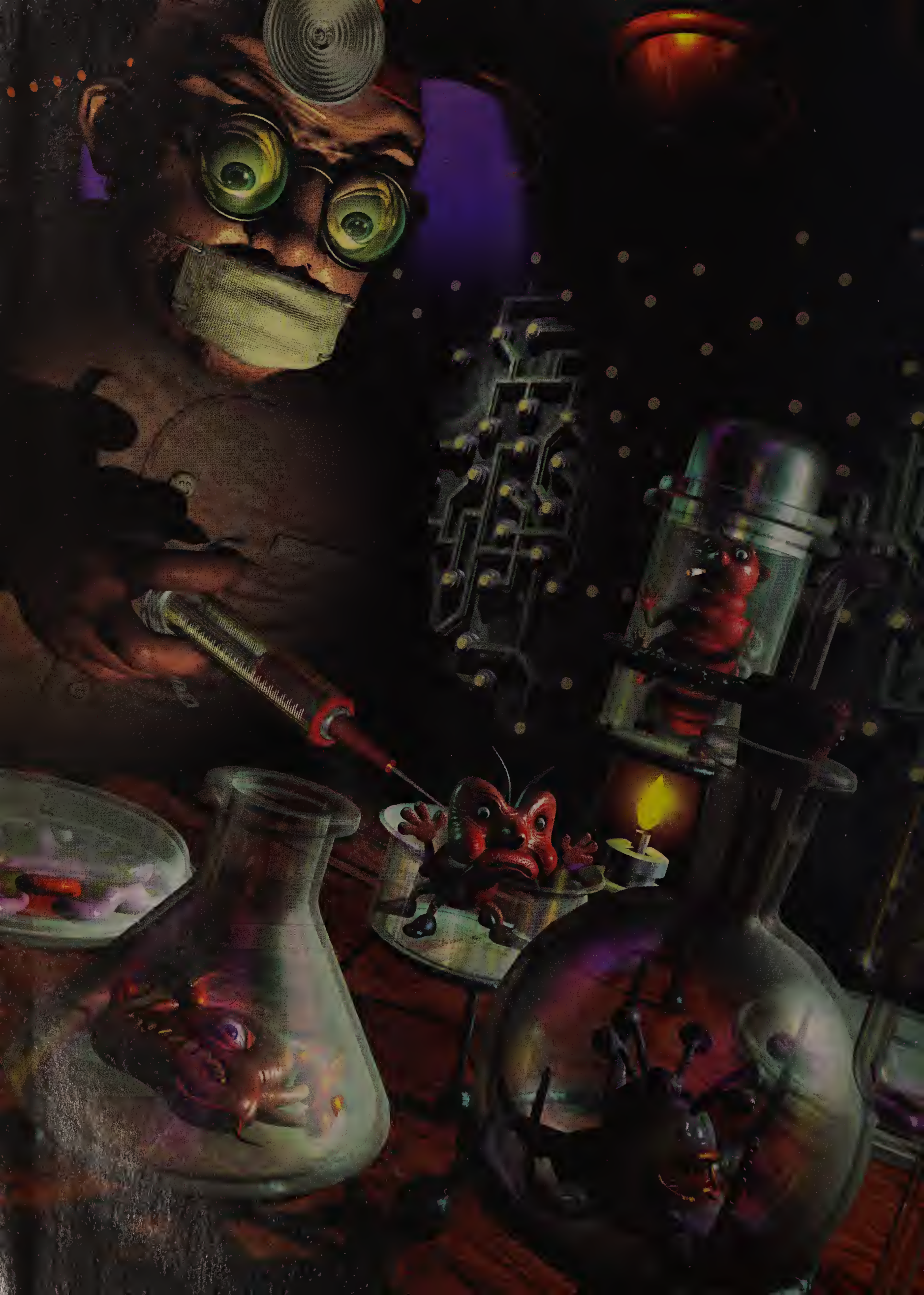
430CDS **$2469.96** CDW 77242

430CDT **$3289.02** CDW 77237

800-434-4239

www.cdw.com

Circle 68 on reader service card



THE BEST SOFTWARE FOR PROTECTING YOUR PC.

ANTIVIRUS

VIRUS KILLERS

COMPUTER VIRUSES ARE COMING SOON TO A PC NEAR YOU.

DON'T GET PARANOID, GET ANTIVIRUS SOFTWARE.

BY STAN MIASTKOWSKI

SOMETHING'S UP WITH YOUR PC. Something bad. It's raining characters in your word processing document. Or perhaps you just received birthday greetings addressed to someone named Joshi. Or maybe you just noticed that half the contents of a directory seem to be missing. Don't look now, but you've got a virus.

Computer viruses are so overhyped in movies and the news, it's easy to shrug them off as one more of life's little risks. Don't. Computer viruses are real, lethal, and coming soon to a PC near you. Thanks to the widespread use of LANs and the Internet, and the advent of macro viruses that spread through e-mail, it's easier than ever for your computer to pick up a nasty bug (see "It Could Happen to You"). If you're lucky, all you'll lose is the time it takes to find ▶

ILLUSTRATIONS BY JIM LUCKIE

INSIDE

183 DR SOLOMON'S ANTI-VIRUS TOOLKIT

186 F-PROT PROFESSIONAL

187 IBM ANTIVIRUS VERSION 2.5

188 MCAFEE VIRUSSCAN FOR WINDOWS 95

189 NORTON ANTIVIRUS 2.0 FOR WINDOWS 95

190 THUNDERBYTE ANTI-VIRUS UTILITIES

182 Best Buy: Dr Solomon's Anti-Virus Toolkit

182 A Walk on the Wild Side

183 PC-Cillin II Is Good Medicine

186 The Virus Hall of Shame

187 It Could Happen to You/Tips for Self-Protection

188 Features Comparison

189 Viruses Keep Branching Out

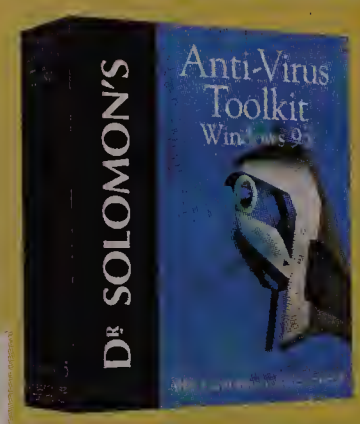
190 ViroQuiz: Are You in Danger of Infection?

and eradicate it. But if your PC's caught a bad virus, your data could be terminal. Take One Half, for instance. This common and lethal virus gradually and secretly encrypts the contents of your hard disk, decrypting them for you on demand. One day, it stops decrypting files when you attempt to access them—and also makes the drive unbootable. Then it's bye-bye, data. (For other infamous viruses, see "The Virus Hall of Shame.")

The only way to avoid such disasters is to stop the virus before it can do its damage. As with biological viruses, you can take steps to reduce your risk of infection (we list them in "Tips for Self-Protection"). But your best shield is an up-to-date antivirus utility. Antivirus programs have been around practically since the dawn of the PC, and as you might expect, they've evolved. The first DOS-based packages had primitive detection schemes, separate removal modules, and few automated features. Most of today's antivirus packages not only integrate detection and removal utilities, they're also cheap (most are under $100), unobtrusive, and effective at finding the latest virus strains. In many cases, a program can also remove the virus and get you back to work quickly.

BEST BUY

DR SOLOMON'S Anti-Virus Toolkit was the clear leader in detecting and removing just about any virus your PC is unlucky enough to catch. Its "Magic Bullet" one-disk emergency solution helps clinch the title. At $85, Dr Solomon's is a little pricey, but at press time we were told that a $50 version with a new, simpler interface will arrive soon. This new version has Toolkit's detection technology, but adds online virus updates.



A GAUNTLET OF VIRUSES

TO FIND OUT WHICH of today's antivirus packages does the best job of detecting and removing viruses, we put seven Windows 95 and two Windows NT antivirus programs through a battery of performance and ease-of-use tests. (Only the Windows 95 programs are fully reviewed here.) *PC World* checked installation, configuration, and general features. To test the programs' virus-catching capabilities, we hired the National Computer Security Association, well-known virus experts.

NCSA tests and certifies commercial antivirus software. All of the programs here, for instance, except ThunderByte Anti-Virus Utilities, are NCSA certified. For our review, NCSA put each program through an unprecedented series of tests even more stringent than its own certification process. Each package went mano a mano with a legion of viruses—2767 in all. Test viruses fell into two main categories: "wild" strains that are known to be actively infecting computers, and "zoo" types that, so far, remain imprisoned in antivirus test labs.

After the last program had sniffed out the last virus, our findings were that most of the packages performed well where it mattered most: Amazingly, they could detect almost every virus. The programs differed most in interface and in virus removal capability.

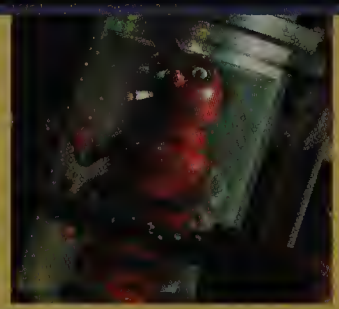
In the grand scheme of things, virus removal is less important than detection. After all, if a package can't remove a virus, that only means you have to delete the infected file—a relatively small price to pay. Failure to detect, on the other hand, can be deadly, because it allows the virus to plunder unchecked. Still, it pays to look for a package that does both jobs well and is also easy to set up.

Our Best Buy, Dr Solomon's Anti-Virus Toolkit, for example, provided the best combination of virus detection and removal. Although three other packages had 100 percent detection, they did not match Dr Solomon's virus removal rate of 89 percent. TouchStone's PC-Cillin II had the next best removal rate—80 percent. We also found that Toolkit was simple to set up and use and more generous with options and automation than any of the others.

Had the shipping version arrived in time for our review, TouchStone's $50 PC-Cillin II probably would have been our first choice for Best Buy. The beta version we looked at didn't remove as many viruses as Dr Solomon's did, but it performed well overall, and its lively interface made virus detection almost fun. See "PC-Cillin II Is Good Medicine" for our review of the beta.

A WALK ON THE WILD SIDE

WE TESTED the nine antivirus programs in this review using over 2700 viruses, but most of the big differences between packages lay in how they handled the 131 file viruses known to be "in the wild" (in circulation). Almost all of the packages did a good job of detecting the wild file viruses, but some, like IBM AntiVirus, had a hard time removing them. With the other types of viruses, ThunderByte had the biggest problem: It couldn't remove boot viruses at all.



WHAT VIRUSES DO

COMPUTER VIRUSES are simply small programs that insert themselves into program files and boot sectors (the area on each floppy or hard disk containing the program

ANTIVIRUS PROGRAM	Platform	Wild file virus detection (percent)	Wild file virus removal (percent)
Dr Solomon's Anti-Virus Toolkit	Windows 95	100	89
F-Prot Professional	Windows 95	99	78
IBM AntiVirus 2.5	Windows 95	96	32
McAfee VirusScan	Windows 95	93	90
Norton AntiVirus 2.0	Windows 95	100	77
ThunderByte Anti-Virus Utilities	Windows 95	95	60
TouchStone PC-Cillin II	Windows 95	100	80
McAfee VirusScan	Windows NT	92	59
Norton AntiVirus 2.0	Windows NT	100	76

HOW WE TEST The National Computer Security Association tested the ability of each package to detect and remove the following: 10 wild boot viruses, 121 wild file viruses (including 13 macro viruses), 2631 "zoo" viruses, and 5 polymorphic viruses that were allowed to cycle through 2000 permutations each. Only wild file virus results are shown here.

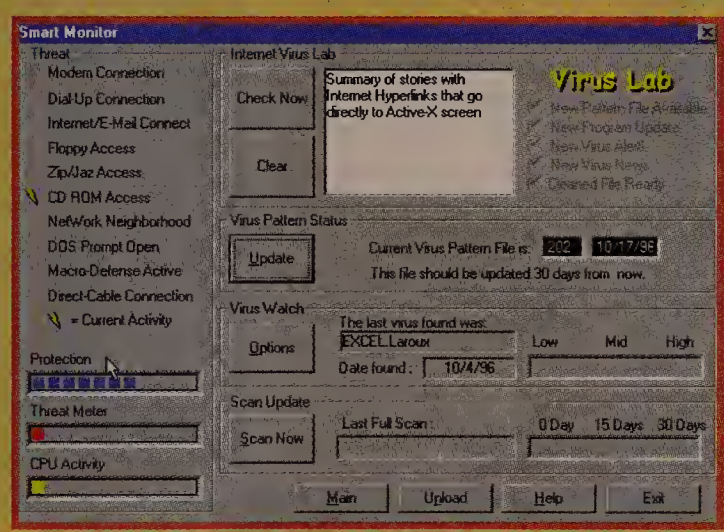
PC-CILLIN II IS GOOD MEDICINE

BANG! POW! ZAP! TouchStone's PC-Cillin II is a good antivirus package that stands out from the crowd of too-serious competitors with a colorful interface and some unexpected extras.

In overall detection and removal performance, the prerelease version of PC-Cillin II that we saw compared quite well with the other programs; only Dr Solomon's did better. The interface—which TouchStone was still revising when we looked at it—is packed with helpful meters and icons. A unique Smart Monitor shows viruses it detects on your system and a history of scans and viruses found, and you can update the program's virus signatures automatically through TouchStone's Web site with a single button click.

PC-Cillin offers almost as many options and customizable features as F-Prot does, but it works better as an unobtrusive background scanner because it doesn't try to pack everything into one main dialog box. If you want lots of options, the $50 PC-Cillin II is a well-designed, low-priced, and effective package. TouchStone Software, 800/531-0450, http://www.checkit.com

READER SERVICE NO. 723



BUSY SCREEN: PC-Cillin II's Smart Monitor tells how long it's been since your last virus infection or antivirus upgrade; its Threat Meter shows how risky your current PC activity is.

that loads the operating system). Most are activated when you run the infected program or boot from an infected disk, and they immediately start replicating themselves by looking for new files and boot sectors to infect. Like real germs, the most successful and prevalent computer viruses do little except hide, reproduce, and wait for the opportunity to spread to other PCs. Often, the only damage they do is incidental—the result of the author's poor programming.

The computer viruses we fear most—those that destroy files, format hard disks or make them unbootable, or corrupt BIOS settings—are relatively rare. They usually don't spread as rapidly as less lethal bugs because they do such a dandy job of disrupting their host—your hard disk, which you may have to reformat, wiping out the virus in the process.

Antivirus packages typically have a couple of ways to seek their targets. All the programs we tested install a memory-resident Windows 95 virtual device driver (VxD) that loads automatically when you start Windows and works continually in the background to find viruses. Because scanning memory isn't enough (it won't discover viruses in programs you don't run), all the reviewed programs also let you schedule a thorough hard disk scan at a time when you're away from your desk. And most packages offer some additional tricks for finding viruses. All but ThunderByte check inside of compressed files, for instance, and most also track changes in the sizes of executable files, a near-sure sign of infection.

YOUR SIGNATURE HERE

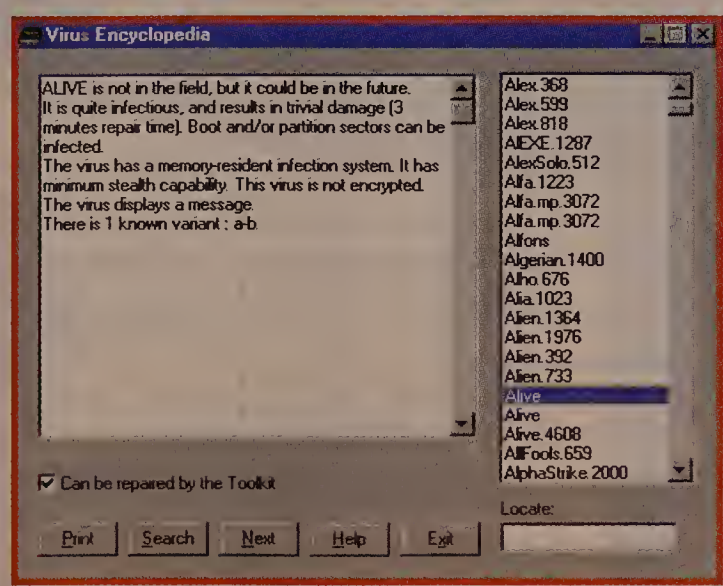
ALL ANTIVIRUS PROGRAMS refer to a database of virus signatures when checking for infection. So keeping this database current is the surest way to trap new virus strains. All the reviewed programs let you update your signature file, but some make it easier than others. Norton AntiVirus 2.0 and PC-Cillin II do the best job, with free, one-button automated updates via the World Wide Web. With others, you'll need to manually download and install the updates. At press time, only Dr Solomon's hadn't yet jumped on the Web update bandwagon, instead sending disks by mail to subscribers.

Whichever antivirus program you decide to buy, it's important to choose it soon, to use it regularly, and to keep its virus signatures up to date. Viruses have never been more prevalent, or more lethal, than now. Fortunately, antivirus tools have never been easier to use, or more potent. The data you protect is your own.

DR SOLOMON'S ANTI-VIRUS TOOLKIT

PRO: Best overall virus detection and removal

CON: Fairly expensive; updates available only via subscription disks



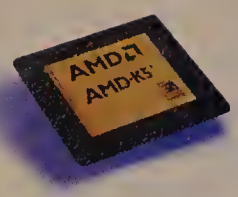
LOOK IT UP: Dr Solomon's Anti-Virus Toolkit, our Best Buy, is tops at finding and removing viruses, and it even provides a comprehensive on-screen virus encyclopedia.

DESPITE a somewhat high price, Dr Solomon's $85 Anti-Virus Toolkit is our Best Buy due to its top-notch performance. Only one other product, McAfee's VirusScan, removed more wild file-infecting viruses in our tests. The program's no-nonsense interface places every antivirus feature you need at your easy disposal, along with a complete on-screen encyclopedia of known viruses and their effects. Roaming virus hunters will appreciate the included "Magic Bullet" bootable floppy disk that lets you quickly seek and destroy a virus on any system. ▶

Looking for Value?

MAX *can* DO IT!

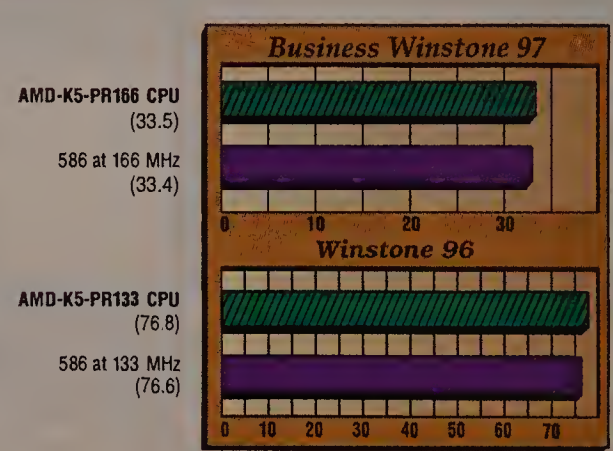
Computing takes on a whole new dimension with systems powered by the AMD K5-PR166 processor. AMD has cleverly designed processors with pinout compatibility for future 586- class PC upgrades; and the AMD K5 processor is compatible by design with the growing base of x86 and Windows compatible software. The AMD-K5-PR166 processor clearly delivers the best value for home productivity, Web connectivity and entertainment.



With the AMD-K5™-PR166 processor, CyberMax provides its customers a viable alternative: the freedom to choose a Microsoft® Windows® & Pentium-compatible processor solution that offers superior value. The AMD-K5-PR166 processor delivers equivalent performance of a 166-MHz Pentium (chart below), making it the *best* performance value for today's desktop PC users.

AMD

The P-Rating of an AMD-K5 processor is determined in an "apples to apples" system-level comparison. PC system manufacturers utilize this methodology for consistent, objective rates on Pentium-relative performance for Windows applications. And the P-Rating helps end users understand true processor performance equivalences while making their PC buying decisions. For example, if an AMD-K5 processor offers the equivalent performance of a 166-MHz Pentium, it receives a P-Rating of "PR166".



The results are in! The AMD-K5 CPU series outperformed its 586 processor opponents in recent Winstone testing.

Max I6-PP200 $2599

- Intel 200MHz Pentium Pro processor
- STB VELOCITY 3D Video Card w/ 8MB VRAM
- 32MB EDO RAM, 256K Pipeline Burst Mode Cache
- 4.0 Gigabyte HDD, 3.5" High Density Floppy
- 12x CD-ROM, Ensoniq Wavetable Sound Card
- Altec Lansing ACS-40 & ACS-250 Subwoofer, Microphone
- The Family Office Multimedia CD Bundle
- 33.6Kbps Fax/Voice/Spkrphone Mdm w/ *CyberSpace Pack*
- 17" Princeton Graphics NI (16.1"VA) Color Monitor
- ▲ *Upgrade to Hitachi 21" Monitor.....Add $699*
- 104-Key keyboard, Microsoft® Mouse
- Microsoft Windows®95 w/ Microsoft Plus!
- ATX Tower Case
- Limited 3yr Warranty with In-Home Service

$91/MONTH BUSINESS LEASE

Max I5-P200 $2449

- Intel Pentium 200MHz Microprocessor
- STB VELOCITY 3D Video Card w/4MB VRAM
- 32MB EDO RAM, 512K Pipeline Burst Mode Cache
- 4.0 Gigabyte HDD, 3.5" High Density Floppy
- 12x CD-ROM , Ensoniq *Wavetable* Sound Card
- Altec Lansing ACS-40 & ACS-250 Subwoofer, Microphone
- The Family Office Multimedia CD Bundle
- 33.6Kbps Fax/Voice/Spkrphone Mdm w/ *CyberSpace Pack*
- 17" Princeton Graphics NI (16.1"VA) Color Monitor
- 104-Key keyboard, Microsoft® Mouse
- Microsoft Windows®95 w/ Microsoft Plus!
- Vertical Tower Case w/ 2 fans
- Limited 3yr Warranty with In-Home Service

$85/MONTH BUSINESS LEASE

Max A10-PR166 $2099

- AMD K5™-PR166 Microprocessor
- STB VELOCITY 3D Video Card w/4MB VRAM
- 32MB EDO RAM, 512K Pipeline Burst Mode Cache
- 3.2 Gigabyte HDD, 3.5" High Density Floppy
- 12x CD-ROM, Ensoniq Wavetable Sound Card
- Altec Lansing ACS-40 & ACS-250 Subwoofer, Microphone
- The Family Office Multimedia CD Bundle
- 33.6Kbps Fax/Voice/Spker phone Mdm w/ *CyberSpace Pack*
- 17" Princeton Graphics 28dp (16.1"VA) NI Color Monitor
- 104-Key keyboard, Microsoft® PS/2 Mouse
- Microsoft Windows®95 w/ Microsoft Plus!
- Vertical Tower Case w/ 2 fans
- Limited 3yr Warranty with In-Home Service

$73/MONTH BUSINESS LEASE

Max A9-PR166 $1999

- AMD K5™-PR166 Microprocessor
- Diamond Stealth 3D 2000 Video Card w/4MB
- 32MB EDO RAM, 512K Pipeline Burst Mode Cache
- 2.5 Gigabyte HDD, 3.5" High Density Floppy
- 12x CD-ROM, Ensoniq Wavetable Sound Card
- Altec Lansing ACS-45 speakers, Microphone
- The Family Office Multimedia CD Bundle
- 33.6Kbps Fax/Voice/Spker phone Mdm w/ *CyberSpace Pack*
- 17" Princeton Graphics 28dp (16.1"VA) NI Color Monitor
- 104-Key keyboard, Microsoft® PS/2 Mouse
- Microsoft Windows®95 w/ Microsoft Plus!
- Vertical Tower Case w/ 2 fans
- Limited 3yr Warranty with In-Home Service

$70/MONTH BUSINESS LEASE

Max A8-PR150 $1499

- AMD K5™-PR150 Microprocessor
- 128-Bit Graphics w/ 4MB MDRAM & ET6000 controller
- 16MB EDO RAM, 512K Pipeline Burst Mode Cache
- 2.0 Gigabyte HDD, 3.5" High Density Floppy
- 12x CD-ROM, Ensoniq Wavetable Sound Card
- Altec Lansing ACS-45 speakers, Microphone
- The Family Office Multimedia CD Bundle
- 33.6Kbps Fax/Voice/Spker phone Mdm w/ *CyberSpace Pack*
- 15" Princeton Graphics *EO* 28dp (13.8" VA) NI Color Monitor
- 104-Key keyboard, Microsoft® PS/2 Mouse
- Microsoft Windows®95 w/ Microsoft Plus!
- Vertical Tower Case w/ 2 fans
- Limited 3yr Warranty with In-Home Service

$52/MONTH BUSINESS LEASE

Max A7-PR133 $1249

- AMD K5™-PR133 Microprocessor
- 64 bit PCI Video Graphics Card w/2MB DRAM
- 16MB EDO RAM, 256K Cache
- 1.6 Gigabyte HDD, 3.5" High Density Floppy
- 8x CD-ROM, Ensoniq Wavetable Sound Card
- 16 bit Sound Card, speakers, Microphone
- The Family Office Multimedia CD Bundle
- 33.6Kbps Fax/Voice/Spker phone Mdm w/ *CyberSpace Pack*
- 15" Princeton Graphics 28dp (13.8" VA) NI Color Monitor
- 104-Key keyboard, Microsoft® PS/2 Mouse
- Microsoft Windows®95 w/ Microsoft Plus!
- Vertical Tower Case w/ 2 fans
- Limited 3yr Warranty with In-Home Service

$44/MONTH BUSINESS LEASE

Add a Hewlett Packard 680C Color Printer to any system..... Just $369

Standard on all systems: **2 high speed serial (16,550), 1 parallel (bi-directional) and 1 game port**

The Family Office Multimedia CD Bundle

Corel WordPerfect Suite 7, Compton's Reference Collection, Compton's Interactive Encyclopedia, Multimedia MBA, Resume Designer, Quicken Special Edition, Corel PrintHouse, Compton's Ocean Explorers, Turn Around Turtle, Pandora's Box, Windows 95 Primer, Internet Mania

(All Pre-installed w/CD back-ups)

Ask about our 90-day "No-Pay" Lease Program!

CyberMax accepts Visa, MasterCard, Discover, American Express and prepaid checks. Purchase orders from government agencies, universities, and Fortune 500 companies can also be accepted. All returned items must have an RMA number and must be in original packaging. The cost of returned freight is not included with any money back guarantee; shipping charges are not refundable. Prices and product descriptions are subject to change without notice. Microsoft, and Windows 95 are registered trademarks of Microsoft Corporation. Pentium and the Intel Inside Logo are registered trademarks of Intel corporation. AMD and AMD-K5 are registered trademarks of Advanced Micro Devices, Inc. On-site service may not be available in certain remote areas, and is available only if determined to be necessary by our technicians; GE 4 year warranty is optional. Products may differ from image shown. Leasing Terms: 36 month/10% FMV option, taxes and shipping additional

Why CyberMax?

In the eight years CyberMax has been in the computer business, we've learned what it takes to build a system that bears the marks of quality and reliability.

Product planning actually begins in the labs of our advanced Research and Development facilities, which also serve as beta test sites for such companies as Advanced Micro Devices, Cyrix, Microsoft and Novell. We then build all of our systems with name brand components, and pre-install a generous helping of the industry's leading software titles. Finally, we subject every PC to our intense 16 point, 72-hour quality control check.

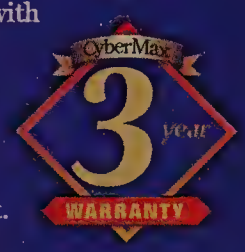
Factor in custom configuration availability, top notch service and a money back guarantee, and there's only one solution when shopping for your personal computer needs. Look to CyberMax.

Volume Purchase Program

The more you buy, the more you save at CyberMax. When you order 5 or more systems, you're eligible for our Volume Purchase Discount, as well as reduced Federal Express shipping and handling charges. And if you're a smaller reseller, we'll accumulate your purchases and apply the discounts as you qualify. At CyberMax, every purchase counts!

Service Guaranteed!

All CyberMax systems come with a 3-year limited warranty on parts replacement, plus one year on-site service, a 30-day money-back guarantee, and toll-free technical support.



For an additional three years of on-site service, we also offer the optional GE Service Protection Plus Plan. CyberMax gives you service you can count on!

1-800-437-4596

http://www.cybmax.com

Sales hours: M-F 9am-9pm EST, Sat. 10-4

Systems shipped via FedEx

Canada 1 800 695 4991

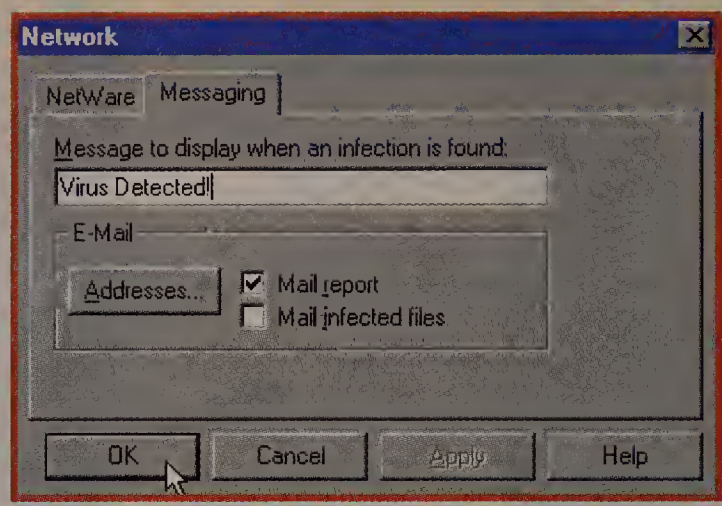
133 N. 5th St., Allentown, PA 18102 (610) 770-1808

Circle 74 on reader service card

On the downside, Toolkit doesn't let you download new virus data, and updates are limited to four a year.

As we went to press, the company told us it would soon begin selling the Windows 95 version of Toolkit only as a five-user package for $349. But starting in mid-March, the company will introduce a new, simpler $50 version called Dr Solomon's Anti-Virus. Based on a beta we saw, this new package can't scan network drives, but it retains all the features that make Toolkit great for personal use, including the encyclopedia and Magic Bullet disk (renamed SOS). The interface is easier to use, you can do online updates, and monthly updates will cost $29.95 a year. We haven't run virus tests yet, but the new version has the same detection engine as the Toolkit and should perform as well. We'll test the new version and post the results online. Dr Solomon's Software Ltd., 888/377-6566, http://www.drsolomon.com

READER SERVICE NO. 724



SEND A MESSAGE: F-Prot Professional's LAN tools can notify network administrators of viruses as soon as they're detected.

F-PROT PROFESSIONAL

PRO: Near-perfect virus detection; extensive customization options; can send e-mail alert on virus discovery

CON: Virus updates require password and reinstallation; mediocre removal capability

THOUGH EXPENSIVE at $99, F-Prot Professional is an effective and aggressive antivirus utility brimming with options that LAN administrators will love. But if you are using a stand-alone Windows 95 system and want only simple and unobtrusive protection, F-Prot's LAN extras may be too much. You may also want a package that does a better job of virus removal: F-Prot found 99 percent of our file viruses, but it could disinfect only 78 percent of them.

F-Prot's basic feature set is comparable to that of the other reviewed packages. And like ThunderByte and McAfee VirusScan, it also allows extensive control over what specific disks, folders, or files to include or

THE VIRUS HALL OF SHAME

OF THE 200-ODD computer viruses actually in circulation now, you're likely to encounter only a handful. These are some of the most common:

■ **AntiCMOS** A boot sector virus that spreads when you boot from an infected floppy. This one carries a deadly payload: After the disk it resides on is accessed 256 times, it writes to the computer's CMOS, changing the floppy type and uninstalling the hard disk. Fortunately, recovery is easy if you know what to do—just run the CMOS setup program.

■ **AntiEXE** A trickier boot sector virus that spreads whenever you access a floppy's system area (using the dir command, for example). As far as researchers can tell, it damages only one .exe file. Unfortunately, they haven't yet figured out which file that is.

■ **Concept** The first Word macro virus, now widespread thanks to its ability to circulate through shared documents and e-mail attachments. It doesn't cause damage (a new variation even displays the message "Have a nice day!"), but more destructive relatives continue to pop up. For example, **Wazzu** rearranges words in your document and inserts the word "wazzu" at random; **FormatC** is a trojan horse macro (it carries a destructive payload but does not replicate itself) that formats your hard disk when you open the infected file.

■ **Form.A** A simple boot sector virus; on the 18th of the month, it marks hard disk sectors as damaged, makes keys beep when you press them, and displays a message we can't reprint in a family magazine.

■ **Junkie** A multipartite virus that doesn't cause major outright damage. It occasionally displays the message "Junkie Virus—Written in Malmo" and prevents .com files larger than 64K from running.

■ **NYB** (New York Boot) A relatively simple boot sector virus that spreads to other hard drives and floppy disks if you boot with an infected floppy. NYB isn't overtly malicious, but virus experts say it's so badly written that it can inadvertently damage floppy and hard disk boot sectors, preventing your system from starting.

■ **One Half** A multipartite, polymorphic stealth virus (see "Viruses Keep Branching Out") that encrypts hard disk sectors gradually—you don't notice because it decrypts the data when you access infected files. However, when half of your hard disk is infected, the message "Dis is one half" appears, and decryption ceases along with the ability to boot from the drive. Antivirus software can remove the virus but can't decrypt the data.

■ **Parity Boot** A multipartite virus that doesn't cause any real damage but displays the message "PARITY CHECK" and locks up your PC until you restart it.

■ **Ripper** A malicious boot sector virus that gradually corrupts your hard disk data. Because it happens slowly, you may not notice the corruption until it has already caused serious damage.

■ **Stoned.Empire.Monkey** A boot-sector virus that encrypts hard disk partition tables, making the drive's contents inaccessible. The prognosis sounds grim, and you might assume that you've lost all your data and reformat your hard disk. However, the virus doesn't destroy files. To regain access to the hard disk, you need to run an antivirus program capable of removing the virus.

IT COULD HAPPEN TO YOU

SOMETIMES, bolting the doors against computer viruses isn't enough. Viruses can find a way around your antivirus moat, and recovery can be difficult.

Lee Richheimer, a dentist in Wells, Maine, discovered that even commercial software isn't safe from viruses. Richheimer's copy of McAfee's free Scan virus detector caught AntiEXE rummaging through his system after he installed a color-matching utility called Colorific for his new NEC monitor. Although Richheimer didn't have a virus-removal program, he's unusually conscientious about doing daily backups, and because the AntiEXE virus generally affects only boot sectors, it didn't damage his program or data files. Richheimer used his backups to restore a virus-free system. According to NEC, current Colorific floppies are virus-free, but older copies could still cause problems.

LEE RICHHEIMER DISCOVERED THAT EVEN commercial software is not always free of viruses; with backups, he cleaned up his system.

Barrie Shabel, a retired metallurgist, ran into an even nastier problem when his Windows 3.1-based PC suddenly locked up and refused to boot from the hard disk. After booting from a floppy, Shabel ran McAfee's VirusScan, which showed that his system was infected with KBUG1720, a sophisticated and malicious file virus. Despite VirusScan's above-average virus-removal capabilities, it couldn't get rid of this one.

Shabel took the PC to his dealer, who confirmed the presence of the virus but couldn't remove it even using a different antivirus package. The only solution was a complete reformat of the hard disk and reinstallation of all applications. Because Shabel had backups of all his data files, he was able to get back to work without data loss. But Shabel has no idea where the virus came from, and is now even more vigilant in making backups and keeping VIrusScan updated.

TIPS FOR SELF-PROTECTION

DON'T WIND UP PROFILED in a *PC World* story about senseless virus attacks. The best defense is to make sure viruses can't get to your PC in the first place.

■ **Scan shared floppies.** Boot and file viruses are distressingly common in disks swapped between friends and coworkers.

■ **Set the write-protect tab on floppies** when you're not actively writing to them, and don't leave floppies in the drive. Viruses that spread by infecting the system area of a floppy disk are the most common, and some even periodically check the floppy drive for an easy victim.

■ **Don't download and run.** Although the major online services are usually careful to check all downloadable files for viruses, the World Wide Web is a wild frontier. Major companies are likely to scan their files before posting them, but you can't be sure. For safety, scan downloads before you run, install, or unzip them.

■ **Back up regularly.** Regular backups are crucial because some viruses cause damage that antivirus programs can't repair. Low-priced tape drives make this easier (see last month's "Better Safe Than Sorry"), but backing up requires discipline.

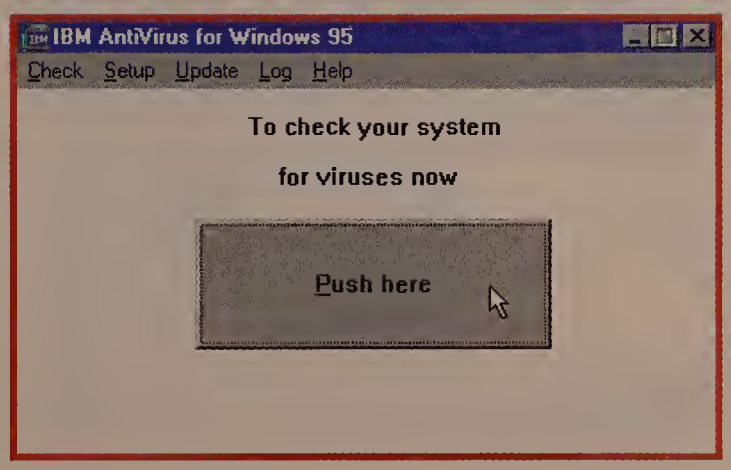
■ **Lock up your PC.** You may practice safe computing, but what about the janitor? Modern PCs let you set a boot password in the BIOS that offers excellent protection, as long as you turn off your PC when you leave for the day or use a password-protected screen saver.

■ **Keep your antivirus program up-to-date,** and use its memory-resident module. Outdated virus signatures leave you open to attack from new viruses, and without memory-resident scanning, viruses may run amok for days or weeks before you catch them. For highest security, scan the entire hard disk regularly.

exclude from scheduled scans. This can save scan time by ignoring files that you've previously scanned and that you know haven't changed. F-Prot is the only package we tested that can send an e-mail alert through a LAN when it detects a virus, and it can even mail the infected file to a system administrator.

F-Prot's major downfall, though, is in virus signature file updates. Although updates are available over the Web, you must first call for a password, then reinstall the program to integrate the update file—annoying steps that none of the other packages require. Command Software Systems, 800/423-9147, http://www.commandcom.com

READER SERVICE NO. 725



SCANNING DOESN'T GET ANY EASIER than IBM AntiVirus's almost ridiculously simple interface. Unfortunately, it's overcautious about removing viruses.

IBM ANTIVIRUS VERSION 2.5

PRO: Fairly good virus detection; versions for multiple OSes in one box

CON: Conservative approach to disinfection hurts ability to remove viruses

ACCORDING TO THE documentation, IBM AntiVirus incorpo- ▶

PHOTOGRAPH BY NICK FRIEDMAN

FEATURES COMPARISON

ANTIVIRUS PROGRAM	Street price	INSTALLATION: Included OS support	INSTALLATION: Preinstallation scan	INSTALLATION: Creates emergency boot disk during install	VIRUS SCANNING: Memory-resident scanner	VIRUS SCANNING: Detects and removes macro viruses	VIRUS SCANNING: Scans compressed files
Dr Solomon's Anti-Virus Toolkit*	$85	Windows 95	○	●	●	●	●
F-Prot Professional	$99	Windows 95	●	●	●	●	●
IBM AntiVirus 2.5	$49	Windows 95 and 3.x, DOS, OS/2	○	●	●	●	●
McAfee VirusScan	$45	Windows 95 and 3.x, NT, DOS, OS/2	●	●	●	●	●
Norton AntiVirus 2.0	$70	Windows 95	●	●	●	●	●
ThunderByte AntiVirus Utilities	$100	Windows 95, DOS [2]	●	○	●	●	○
TouchStone PC-Cillin II (beta)	$50	Windows 95	●	●	●	●	●

*Best Buy ● Yes ○ No

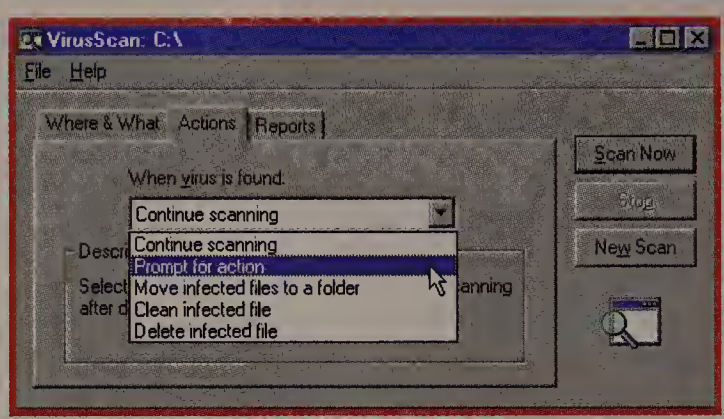
[1] Registered owners can download one program update in first 90 days; additional updates and phone support $49 annually.
[2] Removing viruses requires using DOS version.

rates cutting-edge technology that allows it to recognize new types of viruses. This $49 package did a reasonable job of detecting our wild file-infecting viruses, but it has several problems that make it difficult to recommend.

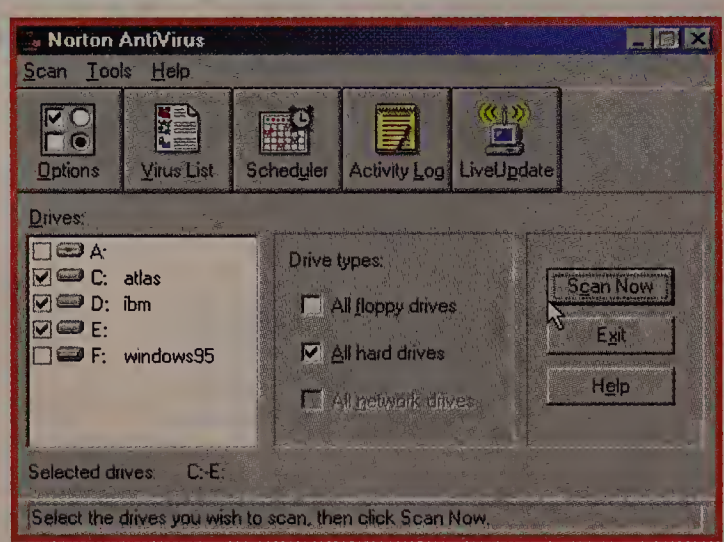
IBM AntiVirus is the only program we reviewed that won't remove a file virus unless it's sure it can do so without damaging the infected file. If the program finds a virus it can't remove harmlessly, your only option is to delete the file, meaning you'll need to reinstall it from the original disks or a backup. As a result, IBM AntiVirus was able to save only 32 percent of files infected by wild viruses. However, like most of the other programs, it removed 100 percent of the boot viruses.

Besides limited virus removal, other characteristics of the program are off-putting. For example, IBM AntiVirus creates a bootable emergency disk when you first install it, but there's no way to create a new one without going back and using the installation floppies. Other programs make this process easier.

On the plus side, virus updates are available from the IBM Web site, and the main screen offers a convenient menu choice for installing them. And if you keep multiple operating systems on one PC, this program's for you—it comes with versions for Windows 95, Windows 3.1, DOS, and OS/2 in one fairly inexpensive package. (An NT version is included in the program's Enterprise Edition.) IBM, 800/742-2493, http://www.av.ibm.com



INEXPENSIVE PROTECTION: Low-cost McAfee VirusScan includes versions for Windows 95/3.x/NT, DOS, and OS/2, but it fared worst at virus detection in our tests.



QUICK CLICKS: Norton AntiVirus 2.0 offers fast access to common chores, one-button virus signature updates, and a virus-removal wizard.

MCAFEE VIRUSSCAN FOR WINDOWS 95

PRO: Best removal rate; works with multiple operating systems; least expensive program

CON: Worst virus detection; support and guaranteed updates cost extra

VIRUSSCAN is one of the best-known antivirus packages, thanks to McAfee's venerable freeware DOS products, media grandstanding by founder John McAfee, and the company's feud with Symantec over whether Norton AntiVirus does a better job of detecting macro viruses. Based on our test results, Symantec can keep its bragging rights, by a slim margin: Its Norton AntiVirus caught all 13 macro viruses, while VirusScan missed one—the fairly rare Imposter. More important, VirusScan fared much worse than any of the other packages at detecting a wide variety of file viruses. It was able to detect only 93 percent, the lowest score of the lot except for the sibling NT version (92 percent).

If its performance were better, VirusScan would be an attractive package. It's quick and easy to install using defaults, or you can customize it to your heart's content. You can scan all files or just program files, and include or exclude compressed files from the scan.

VirusScan is also the only program we reviewed that includes versions for every major operating system—Windows 95, 3.x, and NT; DOS; and OS/2—at the low price of $45.

You'll pay for support instead. Virus database updates are available free over the Web, but according to

AND REMOVAL			UPDATES		
Detects file size changes	Checks floppy drive at shutdown	Allows scheduled scans	Online virus updates	Automated virus updates	Online program updates
●	○	○	○	○	○
○	○	○	●	○	●
●	○	○	●	●	●
●	●	●	●	○	●
●	●	●	●	●	●
●	●	●	●	○	●
○	○	○	●	●	●

McAfee's Web page, these updates are not guaranteed to work unless you subscribe to the company's maintenance plan. Registered users get one free program update within the first 90 days. After that, a $49-per-year maintenance contract entitles you to unlimited free program and virus signature updates, along with 24-hour phone support. McAfee Associates, 800/332-9966, http://www.mcafee.com

READER SERVICE NO. 726

NORTON ANTIVIRUS 2.0 FOR WINDOWS 95

PRO: 100 percent virus detection rate in our tests; great interface; automatic virus updates

CON: Removed only 77 percent of wild viruses

SYMANTEC'S $70 NORTON ANTIVIRUS 2.0 was one of the least successful packages here in virus removal, scoring 77 percent. However, it was one of only four (out of the nine programs we tested) that could detect every single wild virus. Overall, it's a fast, reliable, easy-to-use tool that beginners can install and ignore, and power users can customize.

Norton AntiVirus's interface features LiveUpdate, a one-button method of getting both program and virus signature updates via the Web. Its unique Virus Repair Wizard provides detailed information on the virus detected, plus options to remove it automatically or through a more cautious step-by-step procedure that lets you see every action in the process.

All the essential features—scanning individual drives, directories, or files, or turning memory-resident scanning on or off—are right out front on the main screen for easy access. And ▶

VIRUSES KEEP BRANCHING OUT

TO BE CONVERSANT in virus-speak, it helps to be familiar with the major types of computer viruses.

Boot sector viruses are the most prevalent of all the virus types. All it takes to get one is booting your PC with a floppy disk that has an infected boot sector. Even if you never boot from floppies, eventually you'll forget and leave one in the drive when you start your PC. Fortunately, boot sector viruses are also the easiest to catch. With only one exception—ThunderByte—all of the reviewed programs passed NCSA's boot virus detection and removal tests with flying colors. In addition, three programs—Norton AntiVirus 2.0, VirusScan, and ThunderByte—attack the forgotten-floppy problem head-on: When you shut down Windows 95, they check to see whether a floppy disk is in the drive and then scan it for viruses.

File viruses mostly infiltrate your .exe and .com executable files. Well-written file viruses replicate and carry out their missions without interfering with the host program or otherwise revealing themselves. Some of the most dangerous ones simply replicate until a particular date (Friday the 13th, for example) before destroying files. File viruses are easy to find, but the damage they cause to applications is often so extensive that the only way to remove them is to delete the infected files and reinstall the application.

Multipartite viruses are a hybrid of the file and boot sector types. They infect both files and boot sectors, which makes them better at spreading, and also tougher to detect and remove. In the leapfrog game between virus writers and antivirus toolmakers, viruses of all types are becoming more clever at avoiding detection. The latest wrinkle is the *polymorphic* virus, which continually self-mutates to foil scanners that look for specific virus code strings, called signatures. Even sneakier are *stealth* viruses, which temporarily remove themselves from memory, among other tricks, to elude capture.

Until 1995, you could state with near-certainty that the only type of file that could host a virus was an executable file. That changed when the first Microsoft Word *macro* virus, Concept, started showing up in documents around the world. Though nondestructive, Concept has been followed by other macro viruses that cause more serious problems, including erasing files. And the first Excel macro virus, Laroux, appeared last year, though it's still rare.

Macro viruses spread quickly—all you have to do is open an infected Word or Excel file received on disk or as an e-mail attachment. Currently, only Word and Excel are in danger of macro virus attacks, but it's only a matter of time before other programs also become targets.

In the meantime, there's good news: The latest versions of Word and Excel come with built-in macro virus protection. Even if you're not using Word 97 or Excel 97 yet, all the antivirus packages here detect and remove the most common Word macro viruses, Concept and Wazzu.

VIROQUIZ: ARE YOU IN DANGER OF INFECTION?

YOU AVOID BOOTING with floppies and download software only from trusted sources. And you've so far managed to avoid computer virus infection, so you must be safe, right? Not necessarily. To calculate your danger quotient, take this little test. —*Scott Spanbauer*

1. You run antivirus software
- **A.** whenever the computer is on.
- **B.** only when you download new files.
- **C.** only when your network administrator makes you.
- **D.** at gunpoint.

2. The last time you updated your program's virus signature database was
- **A.** last month.
- **B.** last year.
- **C.** sometime this decade.
- **D.** during the Reagan administration.

3. You sometimes let coworkers
- **A.** view your password-protected screen saver.
- **B.** copy data files to and from your computer using floppies.
- **C.** copy data files to and from your hard disk over the network.
- **D.** use your computer when you're out of the office.

4. You sometimes run programs you found on
- **A.** a CD-ROM or floppy you just scanned for viruses.
- **B.** America Online, or another commercial online service.
- **C.** the Web, Usenet, or a private BBS.
- **D.** a floppy your cousin Leo gave you.

5. You recently viewed
- **A.** a dirty picture from the Internet.
- **B.** an Excel file received as an e-mail attachment.
- **C.** a Word document on a Microsoft promotional CD-ROM.
- **D.** Junior rebooting the family PC with a floppy in the A: drive.

SCORING

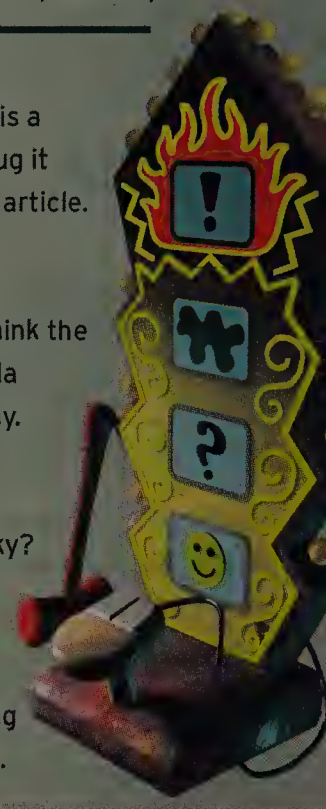
For every **A** answer, score 0 points
For every **B** answer, score 1 point
For every **C** answer, score 2 points
For every **D** answer, score 3 points

12-15
Your computer is a Hot Zone. Unplug it and reread this article.

8-11
You probably think the nickname "Ebola Tamer" is catchy.

4-7
Do you feel lucky?

0-3
Breathe easy—you're practicing safe computing.



advanced options—such as detecting changes in file size, automatic scanning, and reporting scanning results—are just a couple of mouse clicks away. Symantec, 800/441-7234, http://www.symantec.com

READER SERVICE NO. 727

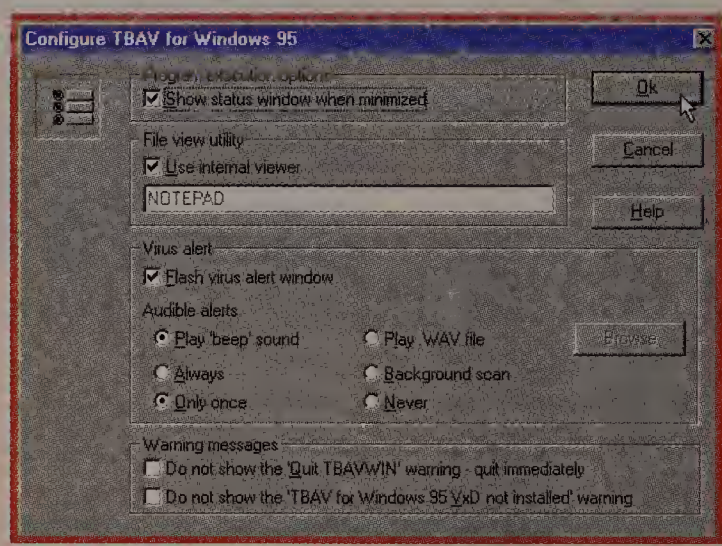
THUNDERBYTE ANTI-VIRUS UTILITIES

PRO: Fairly good file virus detection; unique scanning conveniences

CON: Second-worst file removal capabilities of the bunch; removal procedure too difficult for novices

AT FIRST GLANCE, the $100 ThunderByte Anti-Virus Utilities seems to offer the same tools as its competitors, including easy-to-install virus updates that can be downloaded from the Web. But a closer look reveals that this package has several fairly advanced features—and is missing some others.

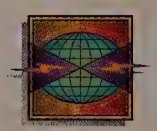
ThunderByte's Explorer-like interface has nice extras you won't find in most packages. You can include or exclude disks, folders, or files from a scan. You can even perform convenient on-the-fly scans of specific files, folders, or disks by right-clicking on them in Explorer or on the desktop. But ThunderByte lacks some features no antivirus program should be without. Most glaring is its inability to remove boot viruses, even though it detected 100 percent of them in our tests. Neither could it scan compressed files, which means that a virus in a zipped file could go undetected.



DOING THE TWO-STEP: ThunderByte Anti-Virus Utilities offers extensive configuration options but makes you boot from a floppy and run a separate program to remove viruses.

ThunderByte's ultra-cautious removal process is a sound one for multiple-PC corporate installations where virus removal can be left to system administrators, but it will likely frustrate novice or casual users. To remove file viruses (except macro viruses), you must first create a floppy containing a separate DOS utility, TBCLEAN, and insert the disk into your PC before starting it. Booting from the floppy reduces the chances that a virus will be active in memory during the scan because you're not accessing an infected boot sector or file. (The quick-start guide doesn't cover this key procedure.) Authentix/ThunderByte Corp., 800/667-8228, http://www.thunderbyte.com

READER SERVICE NO. 728



For a list of virus-related Web sites, reviews of the NT versions of Norton AntiVirus and McAfee VirusScan, and more, visit PC World Online (http://www.pcworld.com/Mar97/antivirus). Contributing Editor Stan Miastkowski is ever vigilant against invading viruses at his fortified cyberbase deep in the New Hampshire woods. Contributing Editor Scott Spanbauer also worked on this article.

For more information about all products in this article, circle reader service number 911. ■

solutions

EPS TECHNOLOGIES ▼ THE BUSINESS OF PROVIDING THE HIGHEST PERFORMANCE SOLUTIONS

EPS®
TECHNOLOGIES
"a tradition of value and performance"

the entrepreneur

TECHNOLOGY & TODAY'S INNOVATOR

We have designed these systems to meet the special challenges facing **today's entrepreneur**. We took input from thousands of small business owners and start-up operators to make sure these systems were equipped with the hardware and the software necessary to keep the entrepreneur competitive. That's why these systems are packed with plenty of hard drive, internal cellular-ready fax modem, Lotus SmartSuite software, and the indispensable Quicken Deluxe accounting package.

EPS APEX L-166 INTEL XL

- 12.1" Active Matrix Display
- 166MHZ Intel Pentium Processor
- 32MB EDO RAM, 256K L2 Cache
- 2MB EDO PCI Graphics
- 1.6GB Hard Drive
- 8X CD-ROM Drive (Removable)
- Zoomed Video Port, Video In Jack
- 1.44MB Floppy Disk Drive
- Infrared Interface Support
- 16-Bit Built-in Sound with Speakers
- Integrated Personal Touchpad
- Two Type II / One Type III PCMCIA Slot
- Lithium Battery / AC Adapter
- 33.6 PCMCIA Fax Modem
- Mobile Car Adapter
- Microsoft Windows95
- Quicken Deluxe
- Lotus SmartSuite or Corel Office Professional 7
- Two-Year Warranty
- 30-Day Money-Back Guarantee
- Deluxe Ballistic Nylon Carrying Case

32MB RAM / 1.6GB HARD DRIVE

$3095

BUSINESS LEASE
$105/mo.

EPS EVOLUTION EV-3 INTEL XE

- 32MB EDO RAM, 512K Pipeline Burst Cache
- 3.2GB EIDE Hard Drive
- 3.5" Floppy Disk Drive
- 3D 4MB EDO PCI 64-Bit Video with Full-Motion Video and Virtual Resolution Support
- 17" N.I. 1600 x 1200 res. (.25 Dot Pitch) MPR II Compliant, Low Radiation
- Wavetable Sound Card with Premium Quality Labtec 3211Speakers
- 12X EIDE CD-ROM Drive
- Internal 33.6 Fax Modem with Voice Mail, Full Duplex Speaker Phone and Caller ID
- 104 Enhanced Keyboard, MS-Compatible Mouse with Pad
- Microsoft Windows95
- Quicken Deluxe
- Lotus SmartSuite or Corel Office Professional 7
- Three-Year Warranty, 30-Day Money-Back Guarantee, and One-Year On-Site Service

PENTIUM™ 200MHZ

$2295

BUSINESS LEASE
$78/mo.

1.800.447.0921

TECHNOLOGY & TODAY'S EXECUTIVE

the corporate leader

We have designed these systems to meet the real world, real time challenges of today's **corporate environment**. When the demand is for highest performance at the most competitive price, you can't surpass these systems. And when productivity improvement is the bottom line, you'll appreciate all the software that comes pre-installed.

EPS EVOLUTION EV-4 CORPORATE XI

- 64MB EDO RAM, 256K Cache
- 3.8GB EIDE Hard Drive
- 3.5" Floppy Disk Drive
- 2MB VRAM PCI 64-Bit Video (upgradeable to 4MB VRAM) with Full-Motion Video and Virtual Resolution Support
- 17" Non-Interlaced (.28 Dot Pitch) MPR II Compliant, Low Radiation
- 12X EIDE CD-ROM Drive
- Internal 33.6 Fax Modem with Voice Mail, Full Duplex Speaker Phone and Caller ID
- 104 Enhanced Keyboard, MS-Compatible Mouse with Pad
- Microsoft Windows95 or WindowsNT Workstation
- Lotus SmartSuite or Corel Office Professional 7
- Three-Year Warranty, 30-Day Money-Back Guarantee, and One-Year On-Site Service

PENTIUM™ PRO 200 MHZ

$2495

BUSINESS LEASE
$85/mo.

EPS APEX™ XL-166 CORPORATE XI

- 13.3" Active Matrix Display
- 166MHZ Intel Pentium Processor
- 48MB EDO RAM, 256K Pipeline
- 2MB EDO PCI Graphics
- 2.1GB Hard Drive
- 8X CD-ROM Drive (Removable)
- Zoomed Video Port, Video In Jack
- 1.44MB Floppy Disk Drive
- Infrared Interface Support
- 16-Bit Built-in Sound with Speakers
- Integrated Personal Touchpad
- Two Type II / One Type III PCMCIA Slot
- (2) Lithium Batteries and AC Adapter
- EPS Battery QuickCharger
- 33.6 PCMCIA Fax Modem
- Microsoft Windows95
- Microsoft Office Professional with Bookshelf
- Quicken Deluxe
- Lotus Organizer
- Two-Year Warranty
- 30-Day Money-Back Guarantee
- Deluxe Ballistic Nylon Carrying Case

48MB RAM / 2.1GB HARD DRIVE

$4295

BUSINESS LEASE
$146/mo.

www.epstech.com

entrepreneur

ENTREPRENEUR solutions

TODAY'S ENTREPRENEUR NEEDS TO WEAR MANY HATS, FROM ACCOUNTS RECEIVABLE SUPERVISOR TO PUBLIC RELATIONS COPYWRITER, FROM INVENTORY MANAGER TO THE DIRECTOR OF INFORMATION SERVICES. THESE SYSTEMS ARE DESIGNED TO GET THE ENTREPRENEUR OUT OF THE GATE FAST. AND THEY ARE BUILT TO KEEP HIM OUT AHEAD OF THE PACK.

corporate leader

IN TODAY'S CORPORATE WORLD, YOU NEED YOUR DATA AT YOUR FINGER-TIPS, WHETHER YOU ARE ON THE ROAD OR IN YOUR OFFICE. YOU GOT WHERE YOU ARE TODAY BY MAKING SOLID DECISIONS. THE EPS CORPO-RATE SOLUTION NOTEBOOK AND DESKTOP SYSTEM DELIVER THE KIND OF TOP PERFORMANCE THAT MAKE DECISION-MAKING EASY – AND THEY COME WITH TWO AND THREE YEAR WARRANTIES.

corporate solutions

EPS TECHNOLOGIES

"a tradition of value and performance"

eps apex

EPS Apex™ ES-133

- 11.3" Dual Scan or 12.1" Active Matrix
- 133MHZ Intel Pentium Processor
- 16MB RAM, 256K L2 Cache
- 1.0GB Hard Drive
- 8X CD-ROM Drive (Removable)
- 1.44MB Floppy Disk Drive
- Infrared Interface Support
- 16-Bit Built-in Sound with Speakers
- Integrated Personal Touchpad
- Two Type II / One Type III PCMCIA Slot
- Lithium Battery / AC Adapter
- Microsoft Windows95
- Quicken Deluxe
- Lotus SmartSuite or Corel Office Professional 7
- Two-Year Warranty
- Carrying Case
- 30-Day Money-Back Guarantee

16MB RAM / 1.0GB HARD DRIVE

$2095 *11.3" dual scan* — BUSINESS LEASE **$71/mo.**

$2495 *12.1" active matrix* — BUSINESS LEASE **$85/mo.**

EPS Apex™ L-133

- 11.3" Dual Scan or 12.1" Active Matrix
- 133MHZ Intel Pentium Processor
- 24MB RAM, 256K L2 Cache
- 2MB PCI Graphics
- 1.3GB Hard Drive
- 8X CD-ROM Drive (Removable)
- 1.44MB Floppy Disk Drive
- Infrared Interface Support
- 16-Bit Built-in Sound with Speakers
- Integrated Personal Touchpad
- Two Type II / One Type III PCMCIA Slot
- Lithium Battery / AC Adapter
- 33.6 PCMCIA Fax Modem
- Mobile Car Adapter
- Microsoft Windows95
- Quicken Deluxe
- Lotus SmartSuite or Corel Office Professional 7
- Two-Year Warranty
- Carrying Case
- 30-Day Money-Back Guarantee

24MB RAM / 1.3GB HARD DRIVE

$2245 *11.3" dual scan* — BUSINESS LEASE **$76/mo.**

$2795 *12.1" active matrix* — BUSINESS LEASE **$95/mo.**

EPS Apex™ L-166

- 12.1" or 13.3" Active Matrix Display
- 166MHZ Intel Pentium Processor
- 32MB EDO RAM, 256K L2 Cache
- 2MB EDO PCI Graphics
- 1.6GB Hard Drive
- 8X CD-ROM Drive (Removable)
- Zoomed Video Port, Video In Jack
- 1.44MB Floppy Disk Drive
- Infrared Interface Support
- 16-Bit Built-in Sound with Speakers
- Integrated Personal Touchpad
- Two Type II / One Type III PCMCIA Slot
- Lithium Battery / AC Adapter
- 33.6 PCMCIA Fax Modem
- Mobile Car Adapter
- Microsoft Windows95
- Quicken Deluxe
- Lotus SmartSuite or Corel Office Professional 7
- Two-Year Warranty
- 30-Day Money-Back Guarantee
- Deluxe Ballistic Nylon Carrying Case

32MB RAM / 1.6GB HARD DRIVE

$3095 *12.1" active matrix* — BUSINESS LEASE **$105/mo.**

$3495 *13.3" active matrix* — BUSINESS LEASE **$136/mo.**

EPS Apex™ XL-166

- 13.3" Active Matrix Display
- 166MHZ Intel Pentium Processor
- 48MB EDO RAM, 256K Pipeline
- 2MB EDO PCI Graphics
- 2.1GB Hard Drive
- 8X CD-ROM Drive (Removable)
- Zoomed Video Port, Video In Jack
- 1.44MB Floppy Disk Drive
- Infrared Interface Support
- 16-Bit Built-in Sound with Speakers
- Integrated Personal Touchpad
- Two Type II / One Type III PCMCIA Slot
- (2) Lithium Batteries and AC Adapter
- EPS Battery QuickCharger
- 33.6 PCMCIA Fax Modem
- Microsoft Windows95
- Quicken Deluxe
- Microsoft Office Professional with Bookshelf
- Lotus Organizer
- Two-Year Warranty
- 30-Day Money-Back Guarantee
- Deluxe Ballistic Nylon Carrying Case

48MB RAM / 2.1GB HARD DRIVE

$4295 *13.3" active matrix* — BUSINESS LEASE **$146/mo.**

eps evolution

EPS Evolution™ EV-1

- 16MB EDO RAM, 256K Pipeline Burst Cache
- 1.2GB EIDE Hard Drive
- 3.5" Floppy Disk Drive
- 2MB PCI 64-Bit Video, MPEG Full-Motion Video
- 15" Non-Interlaced (.28 Dot Pitch) MPR II Compliant, Low Radiation
- Wavetable Sound Card with Labtec Speakers
- 8X EIDE CD-ROM Drive
- Internal 33.6 Fax Modem with Voice Mail, Full Duplex Speaker Phone and Caller ID
- 104 Enhanced Keyboard, MS-Compatible Mouse with Pad
- Microsoft Windows95
- Quicken Deluxe
- Lotus SmartSuite or Corel Office Professional 7
- Compton's Interactive Encyclopedia, Complete Reference Collection, Compton's Complete Street Guide, Mosby's Medical Encyclopedia
- Three-Year Warranty, 30-Day Money-Back Guarantee, and One-Year On-Site Service

PENTIUM™ 133MHZ **$1395** — BUSINESS LEASE **$48/mo.**

PENTIUM™ 166MHZ **$1495** — BUSINESS LEASE **$51/mo.**

EPS Evolution™ EV-2

- 16MB EDO RAM, 512K Pipeline Burst Cache
- 2.5GB EIDE Hard Drive
- 3.5" Floppy Disk Drive
- 3D 2MB EDO PCI 64-Bit Video with Full-Motion Video and Virtual Resolution Support
- 17" Non-Interlaced (.28 Dot Pitch) MPR II Compliant, Low Radiation
- Wavetable Sound Card with Labtec Speakers
- 12X EIDE CD-ROM Drive
- Internal 33.6 Fax Modem with Voice Mail, Full Duplex Speaker Phone and Caller ID
- 104 Enhanced Keyboard, MS-Compatible Mouse with Pad
- Microsoft Windows95
- Quicken Deluxe
- Lotus SmartSuite or Corel Office Professional 7
- Compton's Interactive Encyclopedia, Complete Reference Collection, Compton's Complete Street Guide, Mosby's Medical Encyclopedia
- Three-Year Warranty, 30-Day Money-Back Guarantee, and One-Year On-Site Service

PENTIUM™ 133MHZ **$1695** — BUSINESS LEASE **$57/mo.**

PENTIUM™ 166MHZ **$1795** — BUSINESS LEASE **$61/mo.**

EPS Evolution™ EV-3

- 32MB EDO RAM, 512K Pipeline Burst Cache
- 3.2GB EIDE Hard Drive
- 3.5" Floppy Disk Drive
- 3D 4MB EDO PCI 64-Bit Video with Full-Motion Video and Virtual Resolution Support
- 17" N.I. 1600 x 1200 res. (.25 Dot Pitch) MPR II Compliant, Low Radiation
- Wavetable Sound Card with Premium Quality Labtec 3211Speakers
- 12X EIDE CD-ROM Drive
- Internal 33.6 Fax Modem with Voice Mail, Full Duplex Speaker Phone and Caller ID
- 104 Enhanced Keyboard, MS-Compatible Mouse with Pad
- Microsoft Windows95
- Quicken Deluxe
- Lotus SmartSuite or Corel Office Professional 7
- Three-Year Warranty, 30-Day Money-Back Guarantee, and One-Year On-Site Service

PENTIUM™ 166MHZ **$2095** — BUSINESS LEASE **$71/mo.**

PENTIUM™ 200MHZ **$2295** — BUSINESS LEASE **$78/mo.**

EPS Evolution™ EV-4

- 64MB EDO RAM, 256K Cache
- 3.8GB EIDE Hard Drive
- 3.5" Floppy Disk Drive
- 2MB VRAM PCI 64-Bit Video (upgradeable to 4MB VRAM) with Full-Motion Video and Virtual Resolution Support
- 17" Non-Interlaced (.28 Dot Pitch) MPR II Compliant, Low Radiation
- 12X EIDE CD-ROM Drive
- Internal 33.6 Fax Modem with Voice Mail, Full Duplex Speaker Phone and Caller ID
- 104 Enhanced Keyboard, MS-Compatible Mouse with Pad
- Microsoft Windows95 or WindowsNT Workstation
- Lotus SmartSuite or Corel Office Professional 7
- Three-Year Warranty, 30-Day Money-Back Guarantee, and One-Year On-Site Service

PENTIUM™ PRO 200MHZ **$2495** — BUSINESS LEASE **$85/mo.**

EPS® TECHNOLOGIES "a tradition of value and performance"

the affordable solutions

call 1.800.447.0921

ref. # 9703

EPS TECHNOLOGIES, Inc. 10069 Dakota Avenue Box Jefferson, SD 57038 Web Site: www.epstech.com FAX Orders 605-966-5482 Direct Line 605-966-5586 Technical Hotline 800-526-4258 Hrs: 7am-9pm M-F, 9am-4pm Sat CST **GSA Contract No.GS35F4095D**

All brands and products are trademarks or registered trademarks of their respective holders. Prices and configurations are subject to change without notice / obligation. Business leases are based on 36 months. Lease rates are subject to change without notice / obligation. Pentium is a trademark of INTEL Corporation. Viewing dimensions may vary according to monitor size. Money back guarantee excludes shipping charges if returned.

A monthly update of the best desktop PCs, notebooks, printers, monitors, graphics boards, and modems

PC WORLD

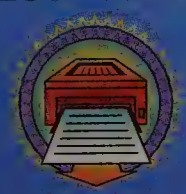
TOP 100

200 Power Desktops

210 Budget Desktops

218 Notebooks

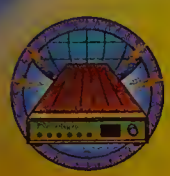
231 Printers



235 Monitors

237 Graphics Boards

239 Modems



First MMX Pentiums Arrive

BY BRAD GRIMES

STRAIGHT TO THE TOP with a burst of MMX speed: the Dimension XPS M200s.

TO GLIMPSE THE FUTURE OF PCS, go straight to the top of this month's Top 20 Power Desktops chart. There you'll find Dell's Pentium-200 Dimension XPS M200s, one of the first available PCs based on Intel's new MMX chip. Not only is the XPS M200s designed to speed up applications written for MMX, such as graphics and video, but it runs everyday business applications faster than ▶

CLOSE BUT NO CIGAR: Panasonic's rugged CF-25 (left) and TI's MMX-based TravelMate 6160 just missed the charts.

the average Pentium-200. The best part is that you'll hardly notice the price difference. The $2779 Dell MMX system costs about the same as Dell's comparably equipped non-MMX version, which ranked third last month and is now being replaced by the MMX version. And Quantex's $2699 QP5/200MMX SM-3, the second of two MMX-based desktop PCs we tested this month, costs only $100 more than its non-MMX sibling.

We also reviewed one MMX notebook this month, Texas Instruments' $4899 TravelMate 6160. Unfortunately, TI's low marks for system reliability keep this new notebook off our charts.

All three MMX systems are fast. The Dimension XPS M200s earned a PC WorldBench score of 234, which is slightly higher than the average Pentium Pro-200 we've tested and fully 11 percent higher than the average score for Pentium-200s. The Quantex QP5/200MMX SM-3's PC WorldBench score of 227 is on par with the average PPro-200 score and 8 percent higher than for the average P-200. Although these MMX PCs perform like Pentium Pro-200s, they cost less.

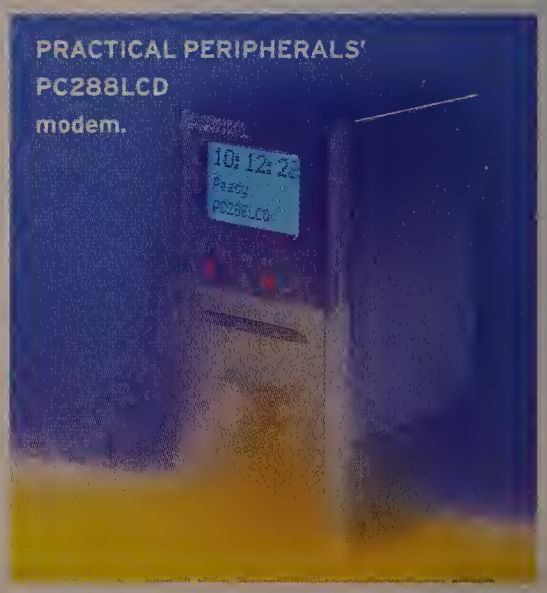
It's too early to say how the MMX will affect notebook speed. The TI TravelMate 6160, which uses a P-166 MMX chip, is the fastest notebook we've tested—but not by much. Its PC WorldBench score of 188 is just 3 points higher than the score of the fastest non-MMX P-150 notebook we've seen—the Sceptre Soundx Series 4000. In marked contrast, several of the preproduction MMX notebooks we tested in February yielded outstanding performance—in some cases better than MMX desktops (see "Big Gain, No Pain: MMX Pentiums," *Top of the News*).

Next month we'll review half a dozen more MMX systems, including a P-200 MMX Dell OptiPlex desktop PC and a P-150 MMX Gateway 2000 notebook.

NOT MMX YET

IT WILL BE SEVERAL MONTHS before all PC manufacturers switch to the MMX processor. In the meantime, some non-MMX machines debuting this month merit your consideration. On the Power Desktops chart, the $3337 Micron Home MPC P200 and the $3148 Hewlett-Packard Pavilion 7280P take different approaches to satisfying families' computing needs. The Micron Home MPC looks like a standard business minitower, but packs cool features such as a Diamond Monster 3D gaming card and a slew of software titles. The HP Pavilion P-166 features a hip, curvy design and a built-in photo scanner. For more on family PCs, see our Top 5 Home PCs chart.

On the Budget Desktops list, the fourth-place Dell OptiPlex GS+ 5200L emerges as the best networkable Dell you can buy for under $2500. We first tested this $2454 machine last month, but it was overshadowed by the OptiPlex GXM 5133, which we deemed a better value. Since then, Dell has discontinued its OptiPlex



PRACTICAL PERIPHERALS' PC288LCD modem.

MMX: NOW OR LATER?

TIRED OF PULLING YOURSELF ABOARD yet another new-technology bandwagon before shopping for a new PC? MMX isn't hype; it works. If you buy one now, you won't be disappointed. Intel added new instructions to its Pentium CPU, doubled the primary cache to 32K, and jammed 36 percent more transistors into the chip. This overhaul means more raw speed in all applications.

But to take full advantage of MMX, a program must be specially written, and we don't expect to see a large influx of MMX software until later in the year. We've run some early MMX-compliant programs such as Adobe Photoshop and Macromedia Director, and seen 50 percent performance boosts. Programs like PowerPoint that take advantage of Microsoft's DirectX technology can get a boost now because DirectX has been revised to use MMX.

By the time all is said and done, though, MMX will be everywhere. Even AMD and Cyrix will have MMX-compatible chips by mid-1997. As the months pass and more MMX software comes out, your PC will actually be able to do more things instead of fewer—that's a nice change.

CORRECTIONS & CLARIFICATIONS

IN PREVIOUS Top 20 Budget Desktop charts, we listed an incorrect phone number and Web address for First Computer Systems, ranked 16th this month. The correct information is included this month. *PC World* regrets the errors.

GXM and GXMT lines, leaving this entry-level PC as the OptiPlex of choice. Dell will be refreshing its GXM line with MMX chips in the coming months, and we will test the new systems soon.

More than half the systems on this month's Top 20 Budget Desktops chart are P-133s, the machine to buy if you're looking for an entry-level PC. The $1695 Vektron Home Office P133, for example, is fast and inexpensive, with some nice extras, including a 12X CD-ROM drive and a 33.6-kilobits-per-second modem. The $1712 Austin Power Plus 133 is a no-nonsense business PC. (At press time we learned that Austin was changing ownership. See *Top of the News*.)

NOTE THE FORM

NOTEBOOK VENDORS continue to make their mark in design. Notebooks like the $3499 Sharp W100T, our seventh-ranked power notebook, and the $2499 Compaq Presario 1010, fourth on the budget chart, have innovative designs. The Sharp has an extra wide screen for viewing side-by-side Web pages, while the Compaq has a set of buttons for playing audio CDs in the CD-ROM drive.

Two new notebooks on the power chart emphasize portability. The $3999 Toshiba Portégé 650CT is the latest Toshiba subnotebook. It weighs just 6.6 pounds but comes with a brilliant 11.3-inch active-matrix screen, a fast P-133 CPU, and a built-in fax-modem. The $4370 HP OmniBook 800CT P-133 weighs the same as the Portégé, but it has an external 4X CD-ROM drive module. At the other end of the spectrum is the $3869 Panasonic CF-25, a bulky but very sturdy notebook that is clad in magnesium alloy. It just missed the chart.

BUYING A GOOD MODEM

THIS MONTH'S Top 10 Modems chart looks little like last month's. For starters, we have new modems heading both the external and PC card charts. The $329 Practical Peripherals PC288LCD V.34, our new number one external modem, costs a pretty penny, but it's money well spent. The PC288LCD is rich in features, with Caller ID support, an easy-to-read status display, and manual volume control. It's also a top performer. Our new Best Buy PC Card modem is the $240 Motorola Montana 33.6. It's not the most expensive PC Card modem on the chart, but you pay a slight premium for its many features and top-notch speed.

Check out our other Top 10 charts for this month's rankings of the best graphics boards, monitors, and workgroup printers you can buy.

Brad Grimes is a senior associate editor for PC World. *Assistant Editor Allyson Bates, Staff Editors John Goddard and Eric Hellweg, Associate Editors Melissa Riofrio and JoAnne Robb, and freelance writers Jon Jacobi, Dan Littman, and Jim Martin contributed to the Top 100. Testing for the Top 100 by Ulrike Diehlmann, Jeffrey Kuta, Kevin Mitchell, Mike Salayko, and Susan Silvius. See page 12 for contact information.*

YOUR GUIDE TO THE TOP 100

QUESTIONS ABOUT OUR CHARTS? The following section should answer most of them. If not, ask us; see page 12 for contact information.

How do the charts work? The Top 20 and Top 10 charts are evolving lists of the best PCs, monitors, modems, printers, and graphics boards we've tested. Every month we test the latest products in each category and compare them to the pool of items we've already reviewed. As new products earn places on the charts, those at the bottom drop off. Price cuts also cause chart changes.

Where do you get your prices? We estimate street prices based on vendor information and our own research, including surveys of retail outlets. We recheck all prices every month.

What does the overall rating mean? It's the sum of all our tests—both hands-on evaluations and automated speed tests. The scale is 1 to 100, so a product that scores in the 90s is generally considered exceptional, one in the 80s is among the best, one in the 70s is above average, and one that scores lower usually doesn't place.

What does the PC WorldBench score mean? It's a measure of the speed of a PC in relation to our baseline machine, a Dell P75t configured with 8MB of RAM, a 540MB hard drive, and no secondary cache. A PC that scores 200, for instance, is twice as fast as the baseline unit.

Where do the reliability and service and support scores for PCs come from? The reliability score and the "service" portion of the service and support score come from readers who respond to the Reliability and Service fax-back survey in each issue of *PC World*. The "support" portion of the service and support score is based on the vendor's support policies (such as length of warranty and support hours).

What do all those word scores mean? Word scores for performance and price are based on a product's rating in relation to other products in its category. For example, a budget PC that is rated "expensive" is high-priced only in relation to other budget PCs. Likewise, a power notebook rated "good" for performance is good only in relation to other power notebooks. Word scores for other categories, such as features, are relative to all desktops or all notebooks.

Where can I find the online version of the Top 100? Go to PC World Online (http://www.pcworld.com). There you'll find not only the current issue of *PC World* and reviews for the last 18 months, but some extra features you'll want to check out. For one thing, PC World Online includes reviews you won't find in print. If a product misses a chart and we don't cover it here, you can go directly to an online review by using the URL provided in each Top 100 section.

Have you ever wished you could build your own chart based on your buying criteria? Now you can, with Personal Shopper at our Web site. Personal Shopper combines your criteria with *PC World*'s current data and test results to generate customized Top 20s and Top 10s. For instance, if you want your chart to rank notebooks that have 120-MHz processors and 28.8-kbps modems, Personal Shopper will find and rank all the machines that fit your specifications.

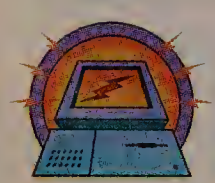
PC WORLD

TOP 20 POWER DESKTOPS

	SYSTEMS	Last month	Month tested	Street price (12/9/96)	CPU	Comments
1	Dell Dimension XPS M200s 800/388-8542 www.dell.com	–	NEW	$2779	Pentium-200 MMX	Dell's first MMX-equipped PC is extremely fast and feature-rich.
2	Dell Dimension XPS Pro200n 800/388-8542 www.dell.com	1	Jan 97	$3349	Pentium Pro-200	Fast, feature-packed minitower is also a snap to open and upgrade.
3	Dell OptiPlex GXpro 200 800/388-8542 www.dell.com	2	Aug 96	$3702	Pentium Pro-200	Speedy corporate PC with modular design, built-in networking.
4	Micron Millennia Pro2 200 B 888/634-8799 www.micron.com	4	Feb 97	$2838	Pentium Pro-200	Fast and thoroughly loaded, but Micron's PC reliability is down from best.
5	Gateway 2000 P5-200 FPC 800/846-2000 www.gw2K.com	7	Sept 96	$2519	Pentium-200	Gateway loads up on features while dropping the price $185.
6	Micron Millennia P166 888/634-8799 www.micron.com	6	Jan 97	$2538	Pentium-166	Fast P-166 is a better deal than Micron's P-200 version; $269 price drop.
7	Gateway 2000 G6-200 800/846-2000 www.gw2K.com	8	Dec 96	$2599	Pentium Pro-200	Fast and expandable, SCSI storage; $280 price drop. A good workgroup server.
8	Quantex QP6/200 PD-4 800/896-4898 www.quantex.com	10	Feb 97	$2699	Pentium Pro-200	One of the fastest PCs we've tested; Quantex gets only a fair reliability rating.
9	Micron Home MPC P200 888/634-8799 www.micron.com	–	NEW	$3337	Pentium-200	Doesn't look the part, but its software bundle makes it family-friendly.
10	HP Vectra VA 6/200 MT 800/752-0900 www.hp.com	–	NEW	$3474	Pentium Pro-200	Great corporate PC, but support hours are limited.
11	HP Pavilion 7285 800/724-6631 www.hp.com	9	Jan 97	$3148	Pentium-200	Performs well, with large hard disk, voice modem. One-year warranty.
12	Compaq Deskpro 2000 Model 5200/1080 800/345-1518 www.compaq.com	12	Nov 96	$2699	Pentium-200	Strong corporate performer, high reliability rating, clean design. No sound.
13	IBM PC 350 P200 800/426-2968 www.pc.ibm.com	–	Sept 96	$3321	Pentium-200	Excellent network PC includes Universal Serial Bus ports; a bit expensive.
14	Quantex QP5/200MMX SM-3 800/896-4898 www.quantex.com	–	NEW	$2699	Pentium-200 MMX	Great deal for an MMX PC, but Quantex's reliability score hurts overall rating.
15	HP Vectra 500 Model 515MCx 5/166 800/752-0900 www.hp.com	13	July 96	$2529	Pentium-166	SOHO system with voice mail; $225 price cut.
16	Quantex QP5/200 SM-3 800/896-4898 www.quantex.com	14	Feb 97	$2599	Pentium-200	Minitower is reasonably fast and comes with a lot of extras; $200 price drop.
17	HP Pavilion 7280P 800/724-6631 www.hp.com	–	NEW	$3148	Pentium-166	Slower than higher-ranked Pavilion 7285, but has a photo scanner.
18	HP Vectra VL4 5/200MT Series 4 800/752-0900 www.hp.com	15	Sept 96	$2849	Pentium-200	Well-built PC, $334 price drop; limited support hours. P-166 model is also good.
19	Compaq Presario 4716 800/345-1518 www.compaq.com	–	Feb 97	$2648	Pentium-200	Sturdy home PC packs decent power, lots of features; $300 price drop.
20	IBM PC 365 800/426-2968 www.pc.ibm.com	–	NEW	$5124	Pentium Pro-200	Has everything, including rewritable optical drive. But price is awfully high.

Best Buy See features chart, page 202; performance chart, page 204. Recommended as home system

[1] To order fax copies of system reviews, call 800/434-4495 from a touch-tone phone and use your credit card. You can order next month's reviews in advance: Power Desktops, Budget Desktops, or Notebook PCs Top 20 charts and capsule reviews ($9.95, available February 26).



WHILE COMPANIES LIKE DELL AND QUANTEX are pushing the speed envelope with the latest MMX technology, others are humming along with tried-and-true Pentium Pro-200 CPUs. This month Hewlett-Packard and IBM crack the Top 20 with Pentium Pros of their own. Some other vendors missed the chart: Digital sent us two fast, well-built Pro-200 systems—the $4315 Celebris GL 6200 and the $3655 Venturis GL 6200. But high prices and Digital's low rating for PC reliability kept them off the chart. Caliber and CyberMax offer loaded, inexpensive Pro-200s for $2695 and $2599, respectively, but their support policies trail the field. For details, visit PC World Online (http://www.pcworld.com/t20pcsnaps).

SCORECARD

★ Overall rating	PC WorldBench score/performance	Vendor's system reliability	Features and design	Price	Vendor's support quality/policies	Fax reprint number[1]	Reader service number
94	234/outstanding	best	outstanding	inexpensive	best/best	3494	647
93	230/very good	best	outstanding	average	best/best	3474	648
91	232/outstanding	best	outstanding	average	best/best	3401	649
90	231/outstanding	good	outstanding	average	best/best	3487	650
89	208/very good	fair	outstanding	inexpensive	best/best	3418	651
89	208/very good	good	outstanding	inexpensive	best/best	3473	652
88	234/outstanding	fair	outstanding	inexpensive	best/best	3458	653
87	235/outstanding	fair	outstanding	inexpensive	good/best	3488	654
87	216/very good	good	outstanding	average	best/best	3495	655
87	229/very good	best	outstanding	average	good/worst	3496	656
87	207/good	best	outstanding	average	good/fair	3475	657
87	218/very good	best	very good	inexpensive	fair/best	3442	658
86	215/very good	good	outstanding	average	good/good	3422	–
86	227/very good	fair	outstanding	inexpensive	good/best	3497	659
85	192/good	best	outstanding	inexpensive	good/poor	3383	660
85	216/very good	fair	outstanding	inexpensive	good/best	3489	661
84	184/good	best	outstanding	average	good/fair	3498	662
84	201/good	best	very good	average	good/worst	3421	663
84	202/good	best	very good	inexpensive	fair/good	3499	664
84	232/outstanding	good	outstanding	very expensive	good/good	3500	–
Scorecard weightings ▶	Performance 25 percent	Reliability 25 percent	Features 20 percent	Price 15 percent	Support 15 percent	All products:	906

This Month's Best Buys

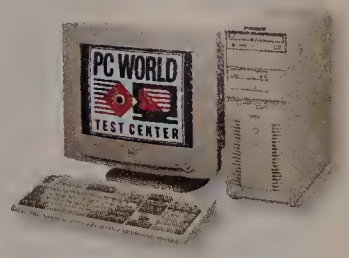
1 DELL DIMENSION XPS M200S

PRO: Fast like a Pentium Pro, 33.6-kbps modem

CON: Total RAM is limited to 64MB

The XPS M200s is the first Dimension to use Intel's performance-enhancing multimedia extensions (also known as MMX), and it bullies its way to the top of our Power Desktops chart on the strength of its Pentium Pro–like speed.

But it doesn't cost as much as Dell's Pentium Pro PCs. At $2779, the Dimension XPS M200s delivers a lot for your money, like an impressive PC WorldBench score of 234—that's a hair faster than the fastest Dell Pentium Pro we've tested, and just a hair slower than the fastest PC in our database. Featurewise, the XPS M200s is also intimidating, thanks to its top-speed CD-ROM drive, 33.6-kbps telephony fax-modem, and roomy hard drive. And although the system's 4MB Matrox Millennium graphics card is not as imposing as Dell's workstation-class card, the Number Nine Imagine 128 Series 2, it's great for most graphics tasks and costs about $300 less.



Dell XPS M200s

But if you're a serious graphics professional, you'll be the first to note a limitation of the XPS M200s. Like all the other Dimensions that use SDRAM, this unit can accommodate only 64MB of system memory—that's only half of what most other PCs can take. Although 64MB sounds like a lot, users of programs such as Photoshop and other high-end graphics software know you can never have enough memory.

Still, Dell throws in nice extras like Microsoft Office Professional and Altec Lansing ACS 290 speakers with a subwoofer. And everything is wrapped up with Dell's highly rated service and support.

2 DELL DIMENSION XPS PRO200N

PRO: Very fast, 33.6-kbps modem, top reliability

CON: None significant

The XPS Pro200n is a powerful machine, but because it's a tad slower than Dell's top-ranked Dimension XPS M200s and costs $570 more, it slips to number two on this month's chart. This fast $3349 system has the same minitower case style as the "s" series of Dell Dimensions. The CD-ROM drive is located at the top of the front panel, making it easily accessible, and the power and reset buttons lie in the center of the panel, well away from the floppy disk eject button.

While Dell's engineers were at it, they made the case much easier to open. Give a thumbscrew a few turns, and off comes the side panel to reveal an impeccable interior with plenty of free slots and bays. All the cable connectors sit right ▶

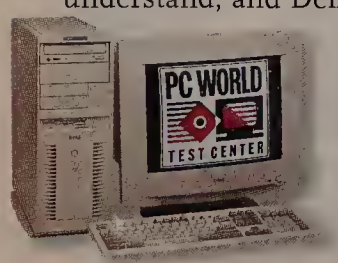
TOP 20 POWER DESKTOPS — STANDARD FEATURES

	SYSTEMS	CPU	RAM (MB)	Secondary cache (K)	Hard drive (GB)	Graphics adapter	Video RAM (MB/type)	Monitor tube/ viewable diagonal (inches)	Screen pitch (mm)	CD-ROM drive speed
1	Dell Dimension XPS M200s*	Pentium-200 MMX	32	512	3.2	Matrox Millennium	4/WRAM	17/15.8	.28	12X
2	Dell Dimension XPS Pro200n*	Pentium Pro-200	32	256	3.2	Number Nine Imagine 128 Series 2	4/VRAM	17/15.6	.28	12X
3	Dell OptiPlex GXpro 200*	Pentium Pro-200	32	256	2.1	Number Nine Imagine 128 Series 2	4/VRAM	17/15.6	.28	8X
4	Micron Millennia Pro2 200 B*	Pentium Pro-200	32	256	2.1	Diamond Stealth 3D 2000	4/DRAM	17/16	.26	12X
5	Gateway 2000 P5-200 FPC*	Pentium-200	32	512	3	Matrox Millennium	2/WRAM	17/15.9	.26	12X
6	Micron Millennia P166	Pentium-166	32	512	2.1	Diamond Stealth 3D 2000	4/EDO DRAM	17/15.8	.26	12X
7	Gateway 2000 G6-200	Pentium Pro-200	32	256	2.1	Matrox Millennium	4/WRAM	17/15.9	.25	8X
8	Quantex QP6/200 PD-4	Pentium Pro-200	32	256	3.2	Matrox Millennium	2/DRAM	17/16	.26	12X
9	Micron Home MPC P200	Pentium-200	32	512	3.1	Diamond Stealth 3D/Monster 3D	4/EDO DRAM	17/16	.26	12X
10	HP Vectra VA 6/200 MT	Pentium Pro-200	32	256	2.5	Matrox Millennium	2/WRAM	17/15.7	.28	8X
11	HP Pavilion 7285	Pentium-200	32	256	3.2	integrated S3 Virge	2/EDO DRAM	17/15.5	.28	8X
12	Compaq Deskpro 2000 Model 5200	Pentium-200	32	256	1.1	integrated Cirrus Logic 5436	2/EDO DRAM	15/14	.28	8X
13	IBM PC 350 P200	Pentium-200	32	512	1.6	integrated Trio64V+	2/EDO DRAM	17/15.5	.28	6X
14	Quantex QP5/200MMX SM-3	Pentium-200 MMX	32	512	3.2	Matrox Millennium	4/WRAM	17/16	.25	12X
15	HP Vectra 500 Model 515MCx 5/166	Pentium-166	16	256	1.6	integrated Trio64	1/DRAM	15/13.7	.28	8X
16	Quantex QP5/200 SM-3	Pentium-200	32	512	3.2	Matrox Millennium	2/WRAM	17/15.8	.28	12X
17	HP Pavilion 7280P	Pentium-166	16	256	2.5	integrated S3 Virge	2/EDO DRAM	17/15.7	.28	8X
18	HP Vectra VL4 5/200MT Series 4	Pentium-200	16	256	2.5	Matrox Millennium	2/WRAM	15/13.5	.28	8X
19	Compaq Presario 4716	Pentium-200	32	256	2.6	integrated S3 Virge	2/DRAM	15/13.6	.28	8X
20	IBM PC 365	Pentium Pro-200	32	256	2.1	Matrox Millennium	4/WRAM	17/15.7	.28	6X

* Best Buy [1] Five years on CPU and main RAM, three years on other parts. [2] Toll call.

below the drive cage, which means you're not faced with the usual maze of ribbon cables obstructing the slots. The interior needs better ventilation, however; the system's heat sink burned our hands when we touched it, despite the presence of a big cooling fan. More air could circulate if the hard drive were mounted farther away from the front grille.

The Dimension XPS Pro200n's system documentation is thorough and easy to understand, and Dell's support policies are superb. The company's system reliability ranks among the best too, according to *PC World* readers. Of dozens of fax-back responses we get from Dell owners each month, few of them complain about system problems.



Dell XPS Pro200n

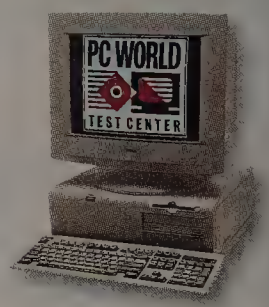
3 DELL OPTIPLEX GXPRO 200

PRO: Speedy, great design, built-in networking

CON: None significant

The $3702 OptiPlex GXpro 200 is a very fast, easily upgradable powerhouse designed to work well in a corporate environment. Although the system comes with some multimedia components, including integrated sound and speakers, don't count on it for the ultimate multimedia experience. Dell put most of the muscle behind this Pentium Pro-200 machine into a LAN connection and a terrific interior design that network administrators will love.

With a PC WorldBench score of 232, the OptiPlex GXpro 200 is one of the fastest systems that we've tested. The graphics hardware is top-notch—a Number Nine Imagine 128 Series 2 graphics card with 4MB of VRAM, plus a bright and crisp 17-inch Dell D1728D monitor. The multimedia setup is pretty much standard for power desktops today: You get an integrated Vibra 16 sound chip, Altec Lansing ACS 31 speakers, and an 8X CD-ROM drive. The computer comes ready to plug into your network with an integrated 3Com ethernet adapter.



Dell GXpro 200

The OptiPlex GXpro's desktop design is

		EXPANDABILITY						CUSTOMER SUPPORT			
Modem speed (kbps)	Sound board	Case style	Max. RAM (MB)	Maximum secondary cache (K)	Open RAM sockets	Open drive bays (ext./int.)	Open slots	Warranty for parts/labor (years)	Weekday toll-free support (hours)	Weekend support	Online support
33.6	integrated Vibra 16	minitower	64	512	1	2/1	3	3/3	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
33.6	Sound Blaster AWE32	minitower	128	512	2	3/1	4	3/3	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
–	integrated Vibra 16	desktop	512	256	3	1/1	4	3/3	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
33.6	integrated Sound Blaster 16	minitower	512	512	3	3/0	4	3 [1]/1	24	Sat., Sun.	CIS, WWW
33.6	Ensoniq Soundscape Vivo	tower	128	512	1	2/6	2	3/3	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
28.8	integrated 16-bit	minitower	128	512	2	3/1	5	3 [1]/1	24	Sat., Sun.	CIS, WWW
–	Sound Blaster 16 PnP	tower	256	256	2	3/6	4	3/3	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
33.6	Ensoniq Vivo 90	minitower	256	256	2	3/3	4	3/1	15	Sat., Sun.	BBS, Prodigy, WWW
33.6	Sound Blaster AWE32	minitower	128	512	2	3/1	3	3 [1]/1	24	Sat., Sun.	CIS, WWW
–	Sound Blaster 16 PnP	minitower	192	256	4	2/1	4	3/3	11 [2]	–	AOL, BBS, CIS, WWW
28.8	integrated 16-bit	minitower	128	256	2	2/3	6	1/1	24	Sat., Sun.	AOL, BBS, CIS, WWW
–	–	compact	128	256	2	2/0	5	3/1	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
–	–	desktop	192	512	4	1/1	5	3/3	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
33.6	Ensoniq Soundscape Vivo	minitower	128	512	2	3/2	4	3/1	15	Sat., Sun.	BBS, Prodigy, WWW
28.8	Sound Blaster 16	minitower	128	256	4	2/1	4	1/1	16	Sat.	AOL, BBS, CIS, WWW
33.6	Ensoniq Soundscape Vivo PnP	minitower	128	512	2	3/2	4	3/1	15	Sat., Sun.	BBS, Prodigy, WWW
33.6	integrated Yamaha OPL3-SA	minitower	128	256	2	1/2	5	1/1	24	Sat., Sun.	AOL, BBS, CIS, WWW
–	Sound Blaster 16	minitower	128	512	4	2/1	4	3/3	11 [2]	–	AOL, BBS, CIS, WWW
33.6	integrated 16-bit	minitower	128	512	0	2/0	5	1/1	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
–	–	desktop	512	256	3	0/1	3	3/3	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW

a vast improvement over that of previous systems, making it one of the easiest to upgrade. The case is simple to remove, and the internal construction is modular. Cards are housed on a vertical riser plane that slides out easily. Even the power supply swings aside for effortless access to the motherboard and drive bays.

The GXpro uses the newer dual in-line memory modules rather than SIMMs. People who service computers love DIMMs because they allow easy memory expansion without forcing you to remove lower-capacity modules to make room. The OptiPlex GXpro has four DIMM sockets instead of the usual two. This leaves three sockets open, so graphics professionals and other users who need lots of RAM can fill 'er up.

4 MICRON MILLENNIA PRO2 200 B

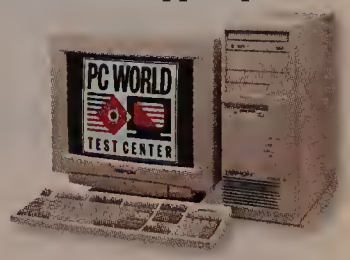
PRO: Fast; 33.6-kbps modem; two CPU sockets

CON: Occasional long waits for technical support

Micron's Millennia Pro2 200 B is the model for you if you need high-quality components plus an upgrade path to the world of dual processing. This $2838 minitower comes with a U.S. Robotics Sportster 33.6-kbps internal modem—one of the best, according to recent *PC World* tests. Micron also provides a pair of Advent AV007 speakers and an integrated sound chip to complete the multimedia setup.

The Millennia Pro2 200 B's Intel motherboard includes a second CPU socket for adding another Pentium Pro-200 processor, a rare but useful option for true multitasking. The computer's DIMM sockets are capable of holding twice as much memory as SIMM sockets.

The Millennia Pro2's PC WorldBench score of 231 makes it one of the fastest machines we've tested. Micron has a very good record for reliability and support, although with recent telephone calls we've been lucky to reach a support person in less than 45 minutes. The service is great once you do get through, however. Micron's warranty covers the CPU and main RAM for five years and other parts for three. You also get free on-site service, and toll-free technical support 24 hours a day, seven days a week. ▶



Micron Pro2 200 B

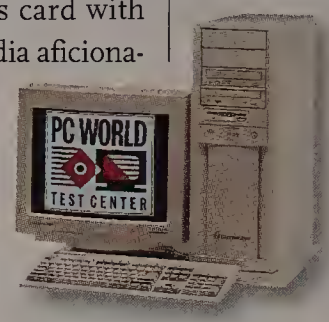
5 GATEWAY 2000 P5-200 FPC

PRO: Big hard disk, 12X CD-ROM drive, crisp display, 33.6-kbps fax-modem

CON: A bit slow considering its fast SDRAM

Note the name change: Gateway 2000 now sells its P5-200XL as the P5-200 FPC. This family system is impressive, and with its price hovering around $2500, it's a new Best Buy. The 17-inch Gateway Vivitron monitor has a fine .26mm dot pitch for crisp graphics, and it supports high refresh rates to help reduce flicker. The monitor is fed by a Matrox Millennium graphics card with 2MB of WRAM. For multimedia aficionados, the P5-200 FPC offers a fast CD-ROM drive, a wavetable sound card, and a set of Altec Lansing speakers with a subwoofer.

The P5-200 FPC's 32MB of SDRAM is on a single DIMM chip (as it is in several Dell Dimensions we've tested), rather than on the more common two SIMMs. That leaves one other DIMM socket open for upgrading. The good news: If you want to upgrade to 64MB, you need only one memory chip. The bad news: To upgrade again later (up to 128MB), you'll need ▶



Gateway P5-200 FPC

TOP 20 POWER DESKTOPS — PERFORMANCE

	SYSTEMS	CPU	RAM (MB)	Secondary cache (K)	PC WorldBench score
1	Dell Dimension XPS M200s*	Pentium-200 (MMX)	32	512	234
2	Dell Dimension XPS Pro200n*	Pentium Pro-200	32	256	230
3	Dell OptiPlex GXpro 200*	Pentium Pro-200	32	256	232
4	Micron Millennia Pro2 200 B*	Pentium Pro-200	32	256	231
5	Gateway 2000 P5-200 FPC*	Pentium-200	32	512	208
6	Micron Millennia P166	Pentium-166	32	512	208
7	Gateway 2000 G6-200	Pentium Pro-200	32	256	234
8	Quantex QP6/200 PD-4	Pentium Pro-200	32	256	235
9	Micron Home MPC P200	Pentium-200	32	512	216
10	HP Vectra VA 6/200 MT	Pentium Pro-200	32	256	229
11	HP Pavilion 7285	Pentium-200	32	256	207
12	Compaq Deskpro 2000 Model 5200	Pentium-200	32	256	218
13	IBM PC 350 P200	Pentium-200	32	512	215
14	Quantex QP5/200MMX SM-3	Pentium-200 (MMX)	32	512	227
15	HP Vectra 500 Model 515MCx 5/166	Pentium-166	16	256	192
16	Quantex QP5/200 SM-3	Pentium-200	32	512	216
17	HP Pavilion 7280P	Pentium-166	16	256	184
18	HP Vectra VL4 5/200MT Series 4	Pentium-200	16	256	201
19	Compaq Presario 4716	Pentium-200	32	256	202
20	IBM PC 365	Pentium Pro-200	32	256	232

*Best Buy

Word 7.0 for Windows 95 · Picture Publisher 6.0 for Windows 95 · WordPerfect 6.1 for Windows · Excel 7.0 for Windows 95 · Paradox 5.0 for Windows · 1-2-3 release 5 for Windows

HOW WE TEST All systems are tested with PC WorldBench, PC World's application-based benchmark. A higher PC WorldBench score is better. All PCs have Windows 95, and video resolution is set to 800 by 600 in 256 colors. We run automated scripts on six popular business applications, performing common tasks such as spelling checks, scrolls, saves, sorts, and recalculations. The PC WorldBench score is a sum of the weighted result of each script: Word (25 percent), Excel (20 percent), Picture Publisher (15 percent), Paradox (15 percent), WordPerfect (15 percent), and 1-2-3 (10 percent). For more details on our benchmark and how we run it, see PC World Online (http://www.pcworld.com).

Now there's an easier way to control your PC from far away.

It seems like most remote control software must have been designed by mad scientists. Complicated connections. Convoluted file transfers. Confounding controls. And security that leaves you feeling anything but secure.

But all that's history. Because now there's Quarterdeck® Rapid Remote™– from the makers of Procomm,® the world's best-selling PC communications software.

Finally, remote control for the rest of us.

Rapid Remote makes it easy to control your PC from anywhere! ***SmartWizards*** walk you through every step of connecting to another PC; just double-click and your connection is made, whether it's via modem, TCP/IP or Novell SPX network, Internet or direct serial connection.

It's all you need to access any file or application from home or on the road, easily. Just drag-and-drop to transfer files. Print to host or guest printers without fuss. Even if you've never used remote software before, you'll be running like a pro right away.

Remote control without the wait.

And you'll be running *fast*. In fact, you can't buy faster remote control.† Features like ***Fast Screen Refresh*** and ***Turbo Transfer*** (which only sends the parts of a file that have changed) minimize connection costs and save you time and money. And with the 32-bit power of Windows 95, Rapid Remote even lets you transfer files and control another PC at the same time. So instead of waiting, you can be working.

Protection from prying eyes.

Rapid Remote provides total security for your data, too. Control guest access by granting specific rights to each guest account. Or keep your sessions secure – even over the Internet – with powerful data encryption. Now you can control your PC from across town or across the globe, and be confident you're protected.

And with our 30-day Money-Back Guarantee, Rapid Remote is even safe to own! To put fast, easy remote control to work for you, visit your local retailer, call the number below, or visit us at **www.quarterdeck.com.**

TRY RAPID REMOTE FREE! CALL 1-800-683-6696

Call now and we'll rush you Rapid Remote FREE! Pay only a $5.00 shipping and handling fee. If Rapid Remote isn't as easy as remote computing can be, return it within 30 days and owe nothing more. If you like it, pay only $69.95. If you already own another remote control product, ask about our special competitive upgrade offer.

OFFER GOOD THROUGH 4/30/97 CODE 01800

©1997 Quarterdeck Corporation. All rights reserved. 13160 Mindanao Way, Marina del Rey, CA 90292-9705 Quarterdeck and Procomm are registered trademarks and the Quarterdeck "Q" symbol and Rapid Remote are trademarks of Quarterdeck Corporation or its subsidiaries. All other products are trademarks or registered trademarks of their respective holders. †Comparative speed claims based on Quarterdeck internal testing.

Circle 185 on reader service card

to toss out a 32MB DIMM and replace it with something bigger.

Gateway throws in a lot of software, including Microsoft Office Professional, Money, Publisher, Cinemania, Encarta, and Golf. You also get fax and Internet communications programs to go with the included Gateway Telepath 33.6-kbps voice/data/fax modem. Overall, it's a lot for your money.

New This Month

The following PCs made our Power Desktops chart for the first time this month. For previously tested PCs on the chart, visit our Web page at http://www.pcworld.com/t20pcs.

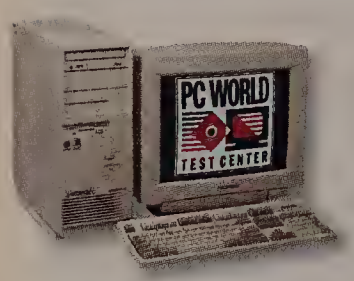
9 MICRON HOME MPC P200

PRO: Hot 3-D graphics card, 33.6-kbps modem

CON: Expensive for a home PC

The system doesn't look like a lot of today's funky, contoured home PCs, but the latest version of Micron's Home MPC P200 has the goods it takes to light up a home office or family fun center. However, all the cool extras add up—$3337 is a lot for families to shell out.

The key enhancements for home business users are the system's roomier 3.1GB Western Digital hard drive and the faster 33.6-kbps Supra fax-modem with speakerphone support. Micron also outfitted this PC with 512K of secondary cache (the version we tested in December had 256K), but this failed to significantly improve the system's PC WorldBench score, which is a solid 216. Gamers will appreciate the new Diamond Monster 3D add-in card, which generates the most realistic 3-D graphics we've seen so far in a PC, and the Microsoft game pad for enjoying bundled software like Monster Truck Madness and MechWarrior 2. Micron even sent us its top-of-the-line speaker set—Advent AV-370s with a subwoofer.



Micron Home MPC

Set the Home MPC P200 next to Micron's business-oriented Millennia machines, and you'd be hard-pressed to find any differences. The Home MPC's minitower design is fairly plain and angular, with drive bays at the top and a vent at the bottom. It's easy to get inside, but with so many boards in there, you'll need to know what you're doing in order to unhitch cables and upgrade components. Amid the confusion are a couple of free memory sockets, three open add-in card slots, and four vacant drive bays.

What makes this Micron a home system is its abundant software. The Home MPC P200 comes with Microsoft Office, Quicken and Microsoft Money (in case you want to try both personal finance packages), Turbo Tax, Microsoft Publisher, and Encarta. There are also a few titles for the kids, including ABC by Dr. Seuss and Earthworm Jim. Internet junkies get Internet Explorer 3.0 and a free month of Net access via SpryNet. Micron backs the Home MPC P200 with an extensive warranty: five years on the CPU and main RAM, three years on other parts. However, the company's PC reliability rating has slipped recently in our fax-back survey.

10 HP VECTRA VA 6/200 MT

PRO: Easy-to-open latch case, security features, tidy interior

CON: Cheap mouse, no weekend tech support

How do you know where you really rank in a relationship? When your significant other gives you the keys to the PC.

This $3474 system is one of the few we've seen recently with a truly Fort Knox–style chassis lock and security bracket to prevent unwanted guests from getting under the lid of this machine. But once you've got the key, the case is easy to remove. With a latch that's flush to either side of the chassis, the toughest thing about taking the cover off is figuring out that no screws are involved. Inside, the system is as tidy as a house that's been cleaned for company: The cables are neatly tied off so there's nothing cluttering the path to the four available SIMM sockets and four empty card slots. What's more, in keeping with the latched exterior, the motherboard buckles in and out of place, making it easy to upgrade.

But don't think that all this PC has to offer is easy access. A Pentium Pro-200 with 32MB of RAM, a 2.5GB hard drive, an 8X CD-ROM drive, and a 17-inch monitor, the Vectra gives every appearance of a PC in shining armor. However, despite all the Vectra's powerful features, its PC WorldBench score of 229, while impressive, is only average for its class.

HP Vectra VA 6/200

Of course, as with any relationship, after you get to know the Vectra better you'll see past its shiny facade. You'll notice that although it has a solid keyboard, the mouse is lightweight. And while the machine comes with a three-year warranty, the lack of weekend technical support and the slender documentation might irritate you. Still, don't give up on the Vectra too soon; this is one system it's worth having the keys to.

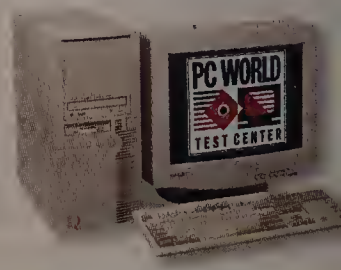
14 QUANTEX QP5/200MMX SM-3

PRO: Fast, great monitor, 33.6-kbps modem

CON: Jumbled interior, reliability rating just fair

It's not as fast as Dell's top-ranked MMX system, but the Quantex QP5/200MMX SM-3 is definitely speedy, with a PC WorldBench score of 227. The best thing about this PC, though, is its price—just $2699. That's a mere $100 more than the company's similarly configured Pentium-200 system (ranked number 16). And when you consider all the features that your money buys, the QP5/200MMX SM-3 is a superior value for a power system. The only thing that keeps it from landing higher on the chart is Quantex's mediocre score for system reliability.

If you're eager to use MMX-specific applications, such as graphics programs, the QP5/200MMX SM-3 is ready for you. Its Matrox Millennium graphics card with 4MB of WRAM displays high-resolution, true-color images at steady refresh rates. And you get a 17-inch MAG DX700T monitor that offers some of the crispest, brightest im- ▶



Quantex QP5/200MMX

BREAKTHROUGH!

Fix-It™ is the easiest way to find and fix Windows problems. Guaranteed!

Quarterdeck Fix-It is the breakthrough you need to solve system problems, conflicts and errors in Windows 95. And unlike Cybermedia's First Aid, Fix-It has a knowledge base of over 1,000 applications and superior emergency recovery. Get the power to help end the frustration of Windows 95 problems today!

Windows 95 - what a mess!

Every new program and peripheral adds new potential problems to your Windows 95 system. Software conflicts and hardware configuration errors can crash your PC in seconds. Botched installations or sloppy uninstalls can cause havoc and slow your system down. Most diagnostic utilities won't even catch many of these problems. They only analyze your hardware devices, or a limited number of applications.

But Fix-It can prevent software conflicts and configuration errors in hundreds of applications and hardware devices before they stop you!

Fix-It solves the problem

Fix-It starts with an automatic, comprehensive scan of your entire system – applications, the Windows 95 registry, configuration files, devices and drivers. It analyzes everything you're using against its extensive application knowledge base of over 1,000 Windows 95, 3.x and DOS applications. Then it fixes problems before they put you in a fix.

The *Preinstallation Inspector* finds potential conflicts in new applications before you install them. And, *Crash Defender* automatically intercepts crashes to give you the best chance to save your data.

See what a breakthrough Fix-It is today. To learn more, call the toll-free number below, visit your local retailer, or visit **www.quarterdeck.com** and download a **FREE TRIAL**.

TRY FIX-IT™ RISK-FREE
ONLY $29.95
CALL 1-800-683-6696

Call now and we'll rush you Fix-It for $29.95 plus shipping and handling. If you're not 100% satisfied, return it within 30 days for a full refund. Not valid with any other offer. Hurry, this is a limited time offer.

Call 1-800-225-8148 for volume licensing prices.

Offer Expires 4/30/97 Offer Code 01306

QUARTERDECK

©1997 Quarterdeck Corporation. All rights reserved. 13160 Mindanao Way, Marina del Rey, CA 90292 Quarterdeck is a registered trademark. Fix-It and the Quarterdeck "Q" symbol are trademarks of Quarterdeck Corporation or its subsidiaries. All other products are trademarks or registered trademarks of their respective holders.

Circle 189 on reader service card

ages of any display we've seen shipped with a system. The PC's other components are also of high quality, including a 12X Toshiba CD-ROM drive, an Ensoniq wavetable sound card, and a set of Altec Lansing 3-D sound speakers with a subwoofer. The system's 33.6-kbps CPI Viva CommCenter fax-modem can handle your voice mail and act as a speakerphone.

The QP5/200MMX's minitower configuration is a little taller than most and contains four free add-in card slots plus five open drive bays—ample for upgrading the PC in the future. However, removing the system's cover is not particularly easy, and once you're inside there's some cable clutter that will block your access to the free memory slots.

The QP5/200MMX SM-3 comes with a big software bundle, including Corel WordPerfect Suite. With the suite you get the Netscape Navigator browser, plus access to AT&T WorldNet Services, a fairly well-respected Internet service provider. Quantex backs the system with a three-year parts and one-year labor warranty, and readers tell us Quantex has improved its support in recent months.

17 HP PAVILION 7280P

PRO: Built-in PhotoDrive scanner, sleek design, ample hard drive for a home PC

CON: Below-average performance for a P-166

Hewlett-Packard's Pavilion 7280P is a solid power system, but it doesn't rank as high as the Pavilion 7285 because it has a slower CPU and less memory. Yet it costs the same as the Pentium-200–based Pavilion 7285. This is because the 7280P comes with a built-in PhotoDrive scanner that accepts color pictures up to 5 by 7 inches. The scanner is incredibly easy to use—just launch the bundled software and slide in a photo—but the quality of the scanned image leaves a little to be desired.

Among the PC's other cool features are a 33.6-kbps fax-modem with phone answering system and full-duplex speakerphone capabilities, wavetable sound, and a pair of Altec Lansing 3D Spatializer speakers that can attach to the 17-inch monitor. There's also a huge software bundle that includes Microsoft Works, Money, and Encarta, plus Quicken, Adobe PhotoDeluxe, and loads of games and edutainment titles.

HP Pavilion 7280P

Although the 7280P is a bit slower than most other P-166 desktop PCs, it's faster relative to its CPU class than previous Pavilion models have been. This is good news for home PC buyers who are lured to the curvy designs and cool multimedia features of systems like the Pavilion but are wary of unacceptable performance. In this case, the speed hit isn't nearly as noticeable as it is with other home PCs. Part of the reason for the new Pavilions' sprightliness in Windows programs is HP's move to pipeline-burst secondary cache instead of regular cache. In addition, HP has put 2MB of video RAM in its new Pavilions instead of just 1MB. Gamers may notice that new 3-D titles run slower than expected despite the 7280P's S3 Virge 3-D accelerator. This is because the new wave of 3-D requires even more video RAM—a situation PC vendors have only recently begun to address.

HP backs its Pavilion PCs with a one-year warranty and round-the-clock support. Readers responding to our ongoing reliability and service survey say they like the support they get from HP and find the company's systems to be highly reliable.

20 IBM PC 365

PRO: Combo CD-ROM/optical storage drive, infrared port, USB port, sturdy design

CON: Very expensive

All we can say is, Where's the kitchen sink? The IBM PC 365's spec sheet reads like a glossary of new computer technologies. Some of these technologies, like a superfast Pentium Pro-200 processor, are useful right now, while others need some time to catch on. But you pay a premium whether they're useful now or not, which is why the $5124 IBM PC 365 lands at the bottom of our Power chart.

The PC 365 comes with networking tools that you can put to use right away. Wake on LAN, for example, lets a network administrator on a remote system turn on unattended PCs in order to update software or perform network audits. The system also has a combination 6X CD-ROM/rewritable optical storage drive. It isn't the fastest CD-ROM drive you can get, but no other desktop PC we've tested lets you swap a regular CD-ROM for a cartridge that holds 650MB of data.

IBM PC 365

Among the system's cool-but-not-useful-now features are a Universal Serial Bus port, which doesn't attach to many high-speed peripherals yet, and a 4-mbps infrared port that's really only useful if you're using a notebook that has an IR port, or a strategically situated, IR-compliant printer.

The desktop design is sturdy and sensible but a bit ugly. The sliding front cover does little to enhance the system's beauty, but it protects the drive bays just fine. The motherboard supports symmetric multiprocessing, which helps protect your investment by letting you add a second Pentium Pro to boost performance. There's also a SCSI port for adding several storage devices. A Matrox Millennium video card with 4MB of WRAM drives the crisp 17-inch monitor.

The bundled software is useful but not glamorous. You get IBM AntiVirus, Co-Session remote control software, and Seagate's Backup Exec for backing up data onto optical storage disks. If you have trouble with your PC 365, you can contact IBM around the clock. The three-year warranty covers parts and labor. ▶

Beyond the Top 20

We evaluated these systems along with the others, but they didn't score high enough to reach the Top 20 Power Desktops chart. For write-ups, see PC World Online (http://www.pcworld.com/t20pcsnaps).

- **Austin Power Plus 200**
- **Caliber Pentium Pro 200**
- **Canon Innova Media MT 9800**
- **CyberMax Promax 2 PP200**
- **Digital Celebris GL 6200**
- **Digital Venturis GL 6200**
- **Smartworks P-200**
- **Sys Performance C200+**

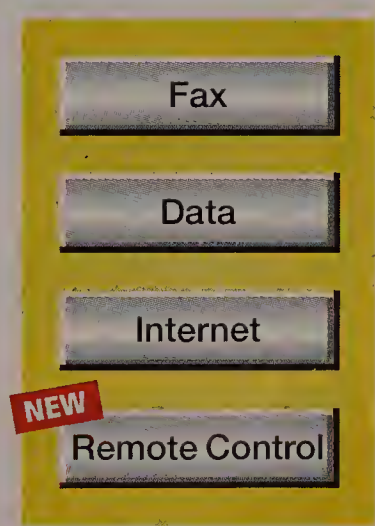
Great. Just when we'd perfected communications software for *this* planet.

We thought we had it all figured out. After all, our new Procomm Plus® for Windows 95 can connect you to virtually anyone, anywhere on this planet.

Especially now that we've integrated secure, fast remote control capabilities into the world's best-selling PC communications software. So you have quick, easy access to your files and applications wherever you are.

Our advanced fax features include OCR, annotation and scanner support for graphics and signatures. While our 36 terminal emulations help you link up to a wide variety of corporate host systems. We've also made life simple with access to the Internet via mail, a newsreader and state-of-the-art web browsing through the included Microsoft® Internet Explorer.

And we integrated it all with a Connection Directory that lets you fax, browse and transfer files without having to jump from one application to another or reconfigure your system settings every single time.



Basically, what we've created is the most advanced 32-bit multitasking communications package on earth. And for now, we'll just have to settle for that. To find out more call 1-800-282-0866, code 01718, visit your nearest store or come to www.quarterdeck.com.

QUARTERDECK.

© 1997 QATASTORM TECHNOLOGIES, INC., a subsidiary of Quarterdeck Corporation. All rights reserved worldwide 13160 Mindanao Way, Marina del Rey, CA 90292. Quarterdeck is a registered trademark and the Quarterdeck "Q" symbol is a trademark of Quarterdeck Corporation. ProComm, Procomm Plus, the Procomm Plus "wavy line design" and QATASTORM are registered trademarks of QATASTORM TECHNOLOGIES INC., a subsidiary of Quarterdeck Corporation. All other trademarks and tradenames are properties of their respective owners.

Circle 190 on reader service card

PC WORLD

TOP 20 BUDGET DESKTOPS

	SYSTEMS	Last month	Month tested	Street price (12/9/96)	CPU	Comments
1	Dell Dimension P133v 800/388-8542 www.dell.com	1	Dec 96	$1879	Pentium-133	Fast and affordable; now comes with a 12X CD-ROM drive. Good first PC.
2	Micron Millennia P133 888/634-8799 www.micron.com	2	Jan 97	$1749	Pentium-133	As fast as some P-166s; $150 price drop but lowered reliability score.
3	Gateway 2000 P5-133 800/846-2000 www.gw2K.com	4	Nov 96	$1699	Pentium-133	Very quick for a P-133, fast graphics card; sound costs extra.
4	Dell OptiPlex GS+ 5200L 800/388-8542 www.dell.com	–	Feb 97	$2454	Pentium-200	For a P-200 it doesn't astound, but it's under $2500 and network-ready.
5	IBM PC 350 P-166 800/426-2968 www.pc.ibm.com	–	Dec 96	$2364	Pentium-166	Big $405 price drop earns this corporate PC a budget Best Buy.
6	Gateway 2000 G6-180 800/846-2000 www.gw2K.com	5	Dec 96	$2179	Pentium Pro-180	Faster than a P-200; with a modem, it would be perfect in the home.
7	Compaq Presario 4402 800/345-1518 www.compaq.com	–	Jan 97	$1799	Pentium-133	$200 price drop and top reliability score put it back on chart.
8	HP Vectra VE 5/133 800/752-0900 www.hp.com	6	Dec 96	$1986	Pentium-133	$184 off corporate PC. But Unified Memory Architecture slows it down.
9	HP Vectra XM5/120 Series 4 800/752-0900 www.hp.com	10	Oct 96	$1828	Pentium-120	Well-built corporate system backed by great reliability but short support hours.
10	Quantex QP5/166 SM-2 800/896-4898 www.quantex.com	7	Aug 96	$2299	Pentium-166	A superb deal, and Quantex has boosted support hours.
11	CyberMax Cyrix Max C3 P166+ 800/443-9868 www.cybmax.com	–	Feb 97	$1699	Cx6x86-P166+	Ours had 24MB of RAM, but company now sells it with 32MB; $200 price drop.
12	Quantex QP6/200 Pro-4 800/896-4898 www.quantex.com	9	Aug 96	$2399	Pentium Pro-200	Only PPro-200 on chart; $100 price drop. Vendor's PC reliability only fair.
13	ProGen Discover MPEG II P150 888/776-9595 www.progen.com	8	Nov 96	$1499	Pentium-150	A good option for game players on a budget.
14	Netis N5133DPS 800/577-7526 www.netistech.com	–	Mar 96	$1620	Pentium-133	A $90 price drop makes this our highest-ranking Netis machine.
15	Vektron Home Office P133 800/725-0026 www.vektron.com	–	NEW	$1695	Pentium-133	Fairly generic PC, but it's fast and inexpensive.
16	First Computer FCS P-120 800/325-1911 www.fcsnet.com	15	Aug 96	$1399	Pentium-120	Nondescript but well-built PC; service and reliability are unknown.
17	Micro Express MicroFlex PCI/5133 800/989-9900 www.microexpress.net	–	Apr 96	$1599	Pentium-133	Fast system for under $1600; early returns indicate below-average reliability.
18	Diamond Technologies P133 800/989-7253 www.diamondtech.com	14	Jan 97	$1545	Pentium-133	Very fast, cheap ($105 price drop). Great features include 33.6-kbps modem.
19	AST Advantage 9304 800/876-4278 www.ast.com	11	Dec 96	$1599	Pentium-133	Home PC performs well and has integrated wavetable sound.
20	Austin Power Plus 133 800/752-1577 www.austindirect.com	–	NEW	$1712	Pentium-133	At press time, Austin's ownership was changing. See Top of the News.

Best Buy See features chart, page 212; performance chart, page 214. Recommended as home system

[1] To order fax copies of system reviews, call 800/434-4495 from a touch-tone phone and use your credit card. You can order next month's reviews in advance: Power Desktops, Budget Desktops, or Notebook PCs Top 20 charts and capsule reviews ($9.95, available February 26).

PENTIUM-133 SYSTEMS ARE DROPPING FROM THE SKY and landing in our Budget Desktops chart. This month Vektron's $1695 Home Office P133 and Austin's $1712 Power Plus 133 give this speedy, affordable CPU the majority on the chart. For an idea of what the next ideal budget processor will be, look to those PCs that just missed the chart. Polywell's Poly P6-180N uses a Pentium Pro-180, like the sixth-ranked Gateway 2000 G6-180, and costs just $1999. That's top-notch speed for a song. Meanwhile, CyberMax and Micro Express lean on the Cyrix 6x86-P200+ to get Pentium-200 performance for around $2000. For more details, visit PC World Online (http://www.pcworld.com/t20pcsnaps).

SCORECARD

★ Overall rating	Price	Vendor's system reliability	Features and design	PC WorldBench score/performance	Vendor's support quality/policies	Fax reprint number[1]	Reader service number
91	average	best	outstanding	188/very good	best/best	3462	665
90	inexpensive	good	outstanding	191/very good	best/best	3479	666
85	inexpensive	fair	very good	192/very good	best/best	3449	667
85	expensive	best	very good	201/very good	best/best	3501	668
84	expensive	good	outstanding	197/very good	good/good	3468	–
83	average	fair	outstanding	218/outstanding	best/best	3466	669
83	average	best	good	153/good	fair/good	3481	670
83	average	best	very good	166/good	good/poor	3465	671
83	average	best	good	177/good	good/poor	3455	672
82	expensive	fair	outstanding	209/very good	good/best	3404	673
82	inexpensive	[2]	outstanding	205/very good	[2]/good	3502	674
82	expensive	fair	outstanding	224/outstanding	good/best	3405	675
81	inexpensive	[2]	very good	183/very good	[2]/poor	3451	676
81	inexpensive	[2]	very good	185/very good	[2]/fair	3503	677
81	inexpensive	[2]	outstanding	188/very good	[2]/good	3504	678
81	very inexpensive	[2]	very good	178/very good	[2]/poor	3470	679
81	inexpensive	[2]	very good	190/very good	[2]/fair	3361	680
80	inexpensive	[2]	very good	185/very good	[2]/poor	3484	681
80	inexpensive	poor	very good	189/very good	fair/good	3490	682
80	inexpensive	[2]	very good	181/very good	[2]/best	3505	683
Scorecard weightings ▶	Price 25 percent	Reliability 25 percent	Features 20 percent	Performance 15 percent	Support 15 percent	All products:	907

[2] Insufficient data.

This Month's Best Buys

1 DELL DIMENSION P133V

PRO: Fast, well designed, top reliability rating

CON: Limited RAM expandability, dark monitor

The Dell Dimension P133v is a powerful multimedia minitower from a company with a solid record for reliability and service, and it offers good performance and features for $1879. With its 16MB of SDRAM and 256K pipeline-burst cache, this Pentium-133 scored 188 in our PC WorldBench test suite—on a par for its CPU class. The unit we tested even came with a 16-bit sound card, something you don't usually get with a bare-bones Dell computer. (A pair of speakers costs extra.)

The Dell monitor displays crisp images and text; however, the screen was a little dark on our unit, and we could not brighten it up. The graphics system is based on an integrated S3 Trio 64V+ video chip and 2MB of EDO DRAM. This design saves a PCI slot and does a good job of speeding up business programs and video clips. It does not, however, help with 3-D software like many new graphics boards today.

Dell P133v

For expanding memory, the P133v uses DIMMs, which hold more memory on a module than SIMMs. The system's two 32MB DIMM sockets can hold up to 64MB of synchronous RAM. People who use a lot of high-end graphics applications like Adobe Photoshop might find a maximum of 64MB to be limiting. Most systems can take twice as much memory.

If you want a little extra power, check out the Dimension P200v, which we reviewed in the November 1996 issue. This minitower is similar to the P133v, but it costs $120 more and is about 10 percent faster. Dell backs its low-cost "v" line with the same three-year parts and labor warranty that it offers with all its Dimension machines, and technical support is available around the clock.

2 MICRON MILLENNIA P133

PRO: Fast, well built, $150 price drop

CON: No modem, no software bundle

The $1749 Micron Millennia P133 performs as well as many Pentium-166s—you'll need to add only a modem and applications to make it a complete package. This minitower's internal design is spare, clean, and open, and the motherboard is easily accessible, so adding cards or upgrading memory is a snap. It also comes with plenty of available expansion slots, drive bays, and SIMM sockets. Four free drive bays will let you add devices such as an extra hard drive and a tape backup drive, and there are six free expansion ▶

Micron P133

TOP 20 BUDGET DESKTOPS — STANDARD FEATURES

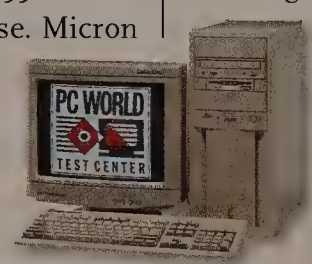
	SYSTEMS	CPU	RAM (MB)	Secondary cache (K)	Hard drive (GB)	Graphics adapter	Video RAM (MB/type)	Monitor tube/ viewable diagonal (inches)	Screen pitch (mm)	CD-ROM drive speed
1	Dell Dimension P133v*	Pentium-133	16	256	1.6	integrated S3 Trio64V+	2/EDO DRAM	15/14	.25	12X
2	Micron Millennia P133*	Pentium-133	16	512	2.1	Diamond Stealth 3D 2000	4/EDO DRAM	15/13.5	.28	12X
3	Gateway 2000 P5-133*	Pentium-133	16	256	2	STB Lightspeed 128	2/MDRAM	15/13.9	.28	8X
4	Dell OptiPlex GS+ 5200L*	Pentium-200	16	256	2.1	integrated S3 Trio64V+	2/VRAM	15/13.7	.28	8X
5	IBM PC 350 P-166*	Pentium-166	16	256	1.3	integrated S3 Trio64V+	2/EDO DRAM	15/13.7	.28	6X
6	Gateway 2000 G6-180	Pentium Pro-180	16	256	3.2	STB Lightspeed 128	2/MDRAM	15/13.9	.25	8X
7	Compaq Presario 4402	Pentium-133	16	–	1.6	integrated S3 Trio64V+	1/EDO DRAM	15/13.6	.28	6X
8	HP Vectra VE 5/133	Pentium-133	16	256	1.1	integrated SiS 6205	2/EDO DRAM	15/14	.28	8X
9	HP Vectra XM5/120 Series 4	Pentium-120	16	512	1.3	integrated S3 Trio64	2/DRAM	15/13.5	.28	–
10	Quantex QP5/166 SM-2	Pentium-166	32	512	2.5	STB Lightspeed 128	2/MDRAM	17/15.9	.26	12X
11	CyberMax Cyrix Max C3 P166+	Cx6x86-P166+	24	512	2.1	STB Lightspeed 128	2/MDRAM	15/13.8	.28	8X
12	Quantex QP6/200 Pro-4	Pentium Pro-200	32	256	2.5	STB Lightspeed 128	2/MDRAM	17/16	.26	12X
13	ProGen Discover MPEG II P150	Pentium-150	16	512	1.3	ProGen Gold 64V+ PCI	2/EDO DRAM	15/13.7	.28	8X
14	Netis N5133DPS	Pentium-133	16	256	1.6	Diamond Stealth64 Video VRAM	2/VRAM	15/13.9	.28	4X
15	Vektron Home Office P133	Pentium-133	16	256	2.5	Matrox Mystique	2/SGRAM	15/14.1	.26	12X
16	First Computer FCS P-120	Pentium-120	16	512	1.2	Matrox Millennium	2/WRAM	15/13.8	.28	6X
17	Micro Express MicroFlex PCI/5133	Pentium-133	16	256	1.6	STB Velocity 64 Video	2/VRAM	17/13.9	.28	8X
18	Diamond Technologies P133	Pentium-133	16	512	2.1	Diamond Stealth 3D 2000	2/EDO DRAM	15/13.9	.28	8X
19	AST Advantage 9304	Pentium-133	24	256	1.6	integrated S3 Trio64V+	1/EDO DRAM	15/13.8	.28	8X
20	Austin Power Plus 133	Pentium-133	16	256	1.6	VideoLogic GrafixStar 400	1/EDO DRAM	15/13.8	.28	8X

* Best Buy [1] Toll call.

slots at your disposal. This Pentium-133 is quite fast, too. With a PC WorldBench score of 191, it performs as well as some Pentium-166s we've seen.

The Millennia's multimedia setup is about as good as it gets at this price. The included Diamond Stealth 3D 2000 video card brims with a hefty 4MB of EDO DRAM, enough to give you high-resolution images in true color. The 4MB of video memory is also crucial for handling 3-D special effects such as texture mapping and z-buffering. The audio is good if not inspiring, with an integrated Vibra 16 sound chip and fair-quality Advent 270 speakers. The system's 2.1GB hard disk should provide enough room for most users. The 15-inch monitor (its viewable portion comes to 13.5 inches) provides a good view of your programs. (Micron offers the same configuration in a Pentium-166 model that costs $200 more and runs about 5 percent faster; that unit is also a good value.)

Strong support is one of Micron's fortes. Aside from 24-hour-a-day technical support, you get a three-year parts and one-year labor warranty and a year of free on-site service. Our readers have been satisfied with the reliability of Micron computers, and the Millennia P133's documentation is clear and concise. Micron hasn't yet joined the growing number of vendors that provide snazzy interactive on-screen help, but the printed manuals are easy to read and contain plenty of diagrams.



Gateway P5-133

3 GATEWAY 2000 P5-133

PRO: Fast, great documentation, good design

CON: No modem or sound card at this price

The Gateway 2000 P5-133 is a dynamite Best Buy for businesses, but it needs sound and a modem to make it a good home PC. It's fast and well designed, and at just $1699 it's eminently affordable. The low price includes the Microsoft Office Professional suite of business applications. This system is good-looking too, with a clean, angular case style that lends an up-to-date feel to an office. The P5-133 also lives up to Gateway's reputation for speedy machines: It turned in an impressive PC WorldBench score of 192, making it the

		EXPANDABILITY					CUSTOMER SUPPORT			
Modem speed (kbps)	Sound board	Case style	Max. RAM (MB)	Maximum secondary cache (K)	Open RAM sockets	Open drive bays (ext./int.)	Open slots	Warranty for parts/labor (years)	Weekday toll-free support (hours)	Weekend support	Online support
28.8	Creative Labs Vibra 16	minitower	64	512	1	3/1	5	3/3	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
–	integrated Vibra 16	minitower	128	512	2	3/1	6	3/1	24	Sat., Sun.	CIS, WWW
–	–	minitower	128	256	1	2/2	5	3/3	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
–	Creative Labs Vibra 16	compact	128	256	2	0/0	2	3/3	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
–	–	desktop	192	512	4	1/1	4	3/3	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
–	Ensoniq Soundscape Vivo PnP	tower	128	256	2	3/6	5	3/3	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
33.6	integrated ESS 1BBB	desktop	128	256	2	0/0	2	1/1	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
–	Sound Blaster 32 PnP	desktop	192	256	4	1/1	3	3/3	11 [1]	–	AOL, BBS, CIS, WWW
–	–	desktop	128	512	4	2/0	4	3/3	11 [1]	–	AOL, BBS, CIS, WWW
33.6	Ensoniq Vivo 90	minitower	128	512	2	3/2	4	3/1	15	Sat., Sun.	BBS, Prodigy, WWW
33.6	Ensoniq Vivo 90	minitower	128	512	0	3/2	4	3/1	12	Sat.	BBS, WWW
33.6	Ensoniq Vivo 90	minitower	128	256	0	2/1	3	3/1	15	Sat., Sun.	BBS, Prodigy, WWW
33.6	Audio Drive 32 PnP	minitower	128	512	2	3/2	4	3/1	9	–	BBS
28.8	Creative Labs Vibra 16	minitower	128	512	2	3/1	4	1/3	10	Sat.	BBS, WWW
33.6	Sound Blaster 16	minitower	128	256	2	3/0	3	1/1	11	Sat.	BBS, CIS, WWW
–	Audio Drive AD16 PnP	tower	128	512	2	3/0	6	1/lifetime	11	Sat.	–
–	Sound Blaster AWE32	minitower	128	512	2	3/1	7	2/2	9.5	Sat., Sun.	WWW
33.6	Wavestar 32	desktop	128	512	3	3/0	4	1/1	9	–	BBS
33.6	integrated Crystal 4232	minitower	192	256	0	2/2	6	1/1	24	Sat., Sun.	AOL, CIS, Prodigy, WWW
–	integrated 16-bit	minitower	128	256	2	3/0	5	3/3	24	Sat., Sun.	BBS

fastest Pentium-133 on the Budget chart.

The unit we tested came with a nice-size 2GB hard disk and an 8X Toshiba CD-ROM drive. The 15-inch CrystalScan is a fine basic monitor, but it's not equal to Gateway's best (the more expensive Vivitron). The system's 2MB STB Lightspeed 128 video card has ranked on our Top 10 Graphics Boards chart for several months because of its proficiency with business and graphics applications and its ability to handle multiple video clips at once. Like the top-ranked Dell Dimension P133v, the Gateway P5-133 uses DIMM sockets to hold its synchronous DRAM. SDRAM was supposed to be faster than regular EDO DRAM, but so far our tests show little if any improvement in business programs from systems that have SDRAM. If your buying decision comes down to the type of main memory, it's a toss-up—both SDRAM and EDO DRAM work equally well.

Gateway has put considerable effort into making its documentation very useful and easy to understand. In addition, its support policies are as good as those of any company on the chart, and readers tell us that the quality of service is top-notch. However, they still rate Gateway's system reliability only as fair.

4 DELL OPTIPLEX GS+ 5200L

PRO: Small profile, fast, built-in networking

CON: No speakers, limited expandability

With Dell discontinuing its OptiPlex GXM line, the OptiPlex GS+ 5200L slips into the budget Best Buy ranks and out of the shadow of last month's third-ranked OptiPlex GXM 5133. The slim little GS+ 5200L is the entry-level model in Dell's network-ready corporate desktop line. At $2454 it's barely a budget computer, but the convenient space-saving design and built-in connectivity, plus the firm's highly rated service and system reliability, are worth a few extra dollars.

Dell GS+ 5200L

Inside, you'll notice Dell's usual attention to detail. The OptiPlex GS+ 5200L is clean and easy to upgrade. On top of the processor is the largest heat sink we've ever seen, but in this case bigger is better. A good heat ▶

sink is quieter than a fan, and this one doesn't hinder upgradability the way heat sinks often do. A possible downside to the system's low-profile design is that there are only two free add-in card slots and no open drive bays.

Video signals are generated by an integrated S3 Trio64V+ chip with 2MB of VRAM and are pumped to a 15-inch Dell monitor that displays as nice a picture as you'll find in its size.

5 IBM PC 350 P-166

PRO: Sturdy design, networking tools, two USB ports, infrared support

CON: Pricey for a budget computer, subpar monitor, no sound included

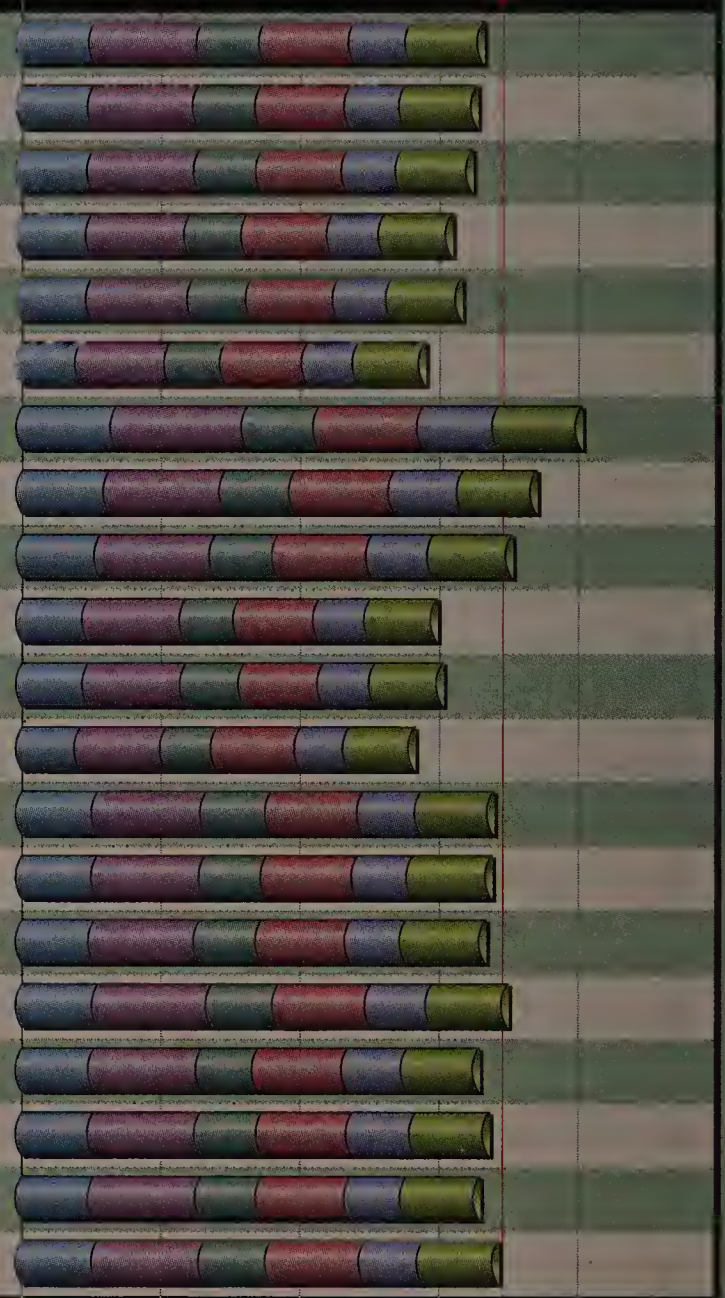
If you're looking for an inexpensive computer system, you may want to pass on this IBM PC's cutting-edge features. But if you're looking for a networkable computer that comes with a few nice technology perks, you will be pleased with the value offered by the $2364 IBM PC 350 P-166.

IBM 350 P-166

A Pentium-166 desktop system, the IBM comes with special tools that allow a network administrator to monitor and work on it from a central location: NetFinity can update software and ▶

TOP 20 BUDGET DESKTOPS — PERFORMANCE

	SYSTEMS	CPU	RAM (MB)	Secondary cache (K)	PC WorldBench score
1	Dell Dimension P133v*	Pentium-133	16	256	188
2	Micron Millennia P133*	Pentium-133	16	512	191
3	Gateway 2000 P5-133*	Pentium-133	16	256	192
4	Dell OptiPlex GS+ 5200L*	Pentium-200	16	256	201
5	IBM PC 350 P-166*	Pentium-166	16	256	197
6	Gateway 2000 G6-180	Pentium Pro-180	16	256	218
7	Compaq Presario 4402	Pentium-133	16	–	153
8	HP Vectra VE 5/133	Pentium-133	16	256	166
9	HP Vectra XM5/120 Series 4	Pentium-120	16	512	177
10	Quantex QP5/166 SM-2	Pentium-166	32	512	209
11	CyberMax Cyrix Max C3 P166+	Cx6x86-P166+	24	512	205
12	Quantex QP6/200 Pro-4	Pentium Pro-200	32	256	224
13	ProGen Discover MPEG II P150	Pentium-150	16	512	183
14	Netis N5133DPS	Pentium-133	16	256	185
15	Vektron Home Office P133	Pentium-133	16	256	188
16	First Computer FCS P-120	Pentium-120	16	512	178
17	Micro Express MicroFlex PCI/5133	Pentium-133	16	256	190
18	Diamond Technologies P133	Pentium-133	16	512	185
19	AST Advantage 9304	Pentium-133	24	256	189
20	Austin Power Plus 133	Pentium-133	16	256	181



*Best Buy

Word 7.0 for Windows 95 · Picture Publisher 6.0 for Windows 95 · WordPerfect 6.1 for Windows · Excel 7.0 for Windows 95 · Paradox 5.0 for Windows · 1-2-3 release 5 for Windows

HOW WE TEST All systems are tested with PC WorldBench, PC World's application-based benchmark. A higher PC WorldBench score is better. All PCs have Windows 95, and video resolution is set to 800 by 600 in 256 colors. We run automated scripts on six popular business applications, performing common tasks such as spelling checks, scrolls, saves, sorts, and recalculations. The PC WorldBench score is a sum of the weighted result of each script: Word (25 percent), Excel (20 percent), Picture Publisher (15 percent), Paradox (15 percent), WordPerfect (15 percent), and 1-2-3 (10 percent). For more details on our benchmark and how we run it, see PC World Online (http://www.pcworld.com).

600 DPI Color capable on any office paper or transparency.

5¢ A typical color page. Call for print samples.

FREE Black ink's free, so it practically deletes your b&w laser.

6 PPM Twice as fast as any competitor's desktop color laser.

15 Backed by 15 years of award-winning color expertise.

World's fastest workgroup color is now only $3,495.

Now the incredible speed and brilliant color of Tektronix are also matched in economy and price. The award-winning, multi-platform Phaser® 350 costs less than any laser-class, network color printer. No wonder, at over $500 million in color printing revenue, Tektronix sells more workgroup color printers than anyone.

Call 800/835-6100, Ext. 1355. http://www.tek.com/CPad?1355

Tektronix

Tektronix, Inc. All rights reserved

Circle 124 on reader service card

track PC configurations across a network, while Wake-on-LAN lets administrators perform upgrades and take inventory when no one is in the office. In order to take advantage of these features, you need to buy a networking card that is designed to support them. IBM sells token ring and ethernet versions for about $120 apiece. (At press time we hadn't hooked up the PC 350 P-166 to a local area network to test this software.)

The PC 350 P-166 is also equipped with two Universal Serial Bus ports, which let you daisy-chain several peripherals—from printers to keyboards—to a single high-speed port. With USB, you can swap peripherals while the system is running and not have to reboot. Keep in mind, though, that USB hasn't exactly taken off as a communications standard. Although its lure is undeniable, companies haven't been quick to come out with USB-compliant peripherals.

The IBM also offers built-in infrared support, with a special port in the back of the unit for connecting an external receiver/transmitter. IBM sells its optional infrared kit for about $80.

With a PC WorldBench score of 197, the PC 350 is an average Pentium-166 performer. The system is extremely well built. Although the desktop case looks awkward (and a bit ugly), with the left side jutting out past the drive bays, it's designed to be sturdy and easily upgradable.

Too often, system vendors cut corners by shipping cheap keyboards, but we liked the solid, responsive IBM keyboard that came with this PC. The 15-inch IBM G50 monitor is crisp and has great controls, though its colors seemed a bit dark. The system also comes with Intel's ProShare collaboration software, which lets users connected via a network or modem share files and hold online conferences.

IBM backs the PC 350 P-166 with a three-year warranty on parts and labor, and technical support is available around the clock. Readers responding to our ongoing fax-back survey rate IBM's service and system reliability as good.

New This Month

The following PCs made our Budget Desktops chart for the first time this month. For previously tested PCs on the chart, visit our Web page at http://www.pcworld.com/t20pcs.

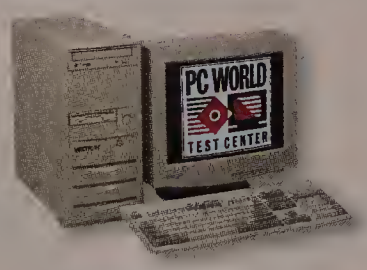
15 VEKTRON HOME OFFICE P133

PRO: Extremely affordable, good performance, solid features

CON: Difficult to upgrade memory, small keyboard, limited support hours

If your mother taught you to buy no-frills, then Vektron's $1695 Home Office P133 is a good candidate for your shopping cart. This caramel-colored PC has some sturdy features that make it a solid buy.

A hearty PC WorldBench score of 188 makes the Vektron one of the speediest Pentium-133s we've tested, ranking on par with the number one Dell Dimension P133v. But this system's speed isn't its only strength: It's also designed for tinkerers. The Vektron has three free externally accessible bays so you can install extra drives. And although the interior is a little cluttered, the one free ISA slot and two free PCI slots are within easy reach. If you want more than the 16MB of RAM that comes with the system, you'll have to do some digging: The two free SIMM sockets are tucked behind cables.



Vektron Home Office

While the PC itself is robust, we didn't think the included Quick Shot mouse felt durable. What's more, the Windows 95 keyboard is on the small side. Since the <Backspace> key is smaller than usual, clumsy fingers could easily hit the <Hyphen> key by mistake.

In addition to practicality, the Vektron Home Office P133 has a spirit of fun. With the system's 12X Toshiba CD-ROM drive, Matrox Mystique 3-D graphics card, and set of Yamaha YST-M7 multimedia speakers, you'll be poised for play. And with a helpful bundle of CD-ROMs that includes work procrastinators such as Microsoft Golf, you're all prepared for gaming. Mom was right: You don't lose much by shopping no-frills.

The one-year warranty is short, but average for a home PC. Support is limited to business hours—which means families won't be able to get support in the evenings, when they're most likely to need it.

20 AUSTIN POWER PLUS 133

PRO: Affordable, good performance

CON: Hard-to-access SIMM sockets, no modem

The Power Plus 133 may not have all the frills of other P-133s, but with an above-average PC WorldBench score of 181 and a $1712 price, it deserves a place on the Budget Desktops chart. (Editor's Note: At press time, Austin's ownership was changing. See Top of the News.)

Austin Power Plus

The package is perfect for the budget-minded business buyer. You get a decent-size hard drive, an 8X CD-ROM drive, and adequate speakers. But make sure you do a rundown of components to ensure that you get what you want. For example, our evaluation unit didn't come with a modem for connecting to the Net, and the its VideoLogic graphics card had only 1MB of video RAM—not enough for displaying 16.8 million colors at 800 by 600 resolution.

Inside the Power Plus 133's plain minitower case are five free add-in card slots and three open drive bays, all of which are easy to access and upgrade. Memory upgrades won't be as easy, though, because the two free SIMM sockets are hidden behind a tangled web of cords.

Documentation is sparse, but at least it helps you set up your PC with fairly easy instructions. Austin includes a three-year warranty, a 30-day money-back guarantee, and round-the-clock support. ▶

Beyond the Top 20

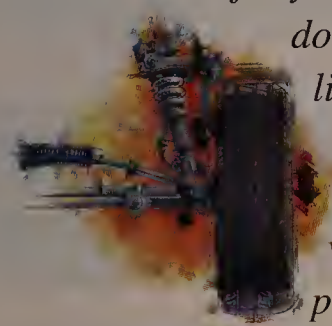
We evaluated these systems along with the others, but they didn't score high enough to reach the Top 20 Budget Desktops chart. For write-ups, see PC World Online (http://www.pcworld.com/t20pcsnaps).

- **CyberMax Promax 6 P200+**
- **Micro Express MicroFlex 5200 P200+**
- **MIS Microniche Pro Pentium 200**
- **NMC P-200**
- **Polywell Poly P6-180N**
- **ProGen Discover MPEG II P166**

It helped to have a few control freaks on staff.

Who better to design and engineer a great handling sedan than people who are obsessed with power and control?

It was just such people who insisted Dodge Stratus ES have standard anti-lock brakes as well as a fully independent, modified double-wishbone suspension like you'd find in race cars.



They lobbied for an available speed-sensitive, variable-assist, rack-and-pinion steering system that allows for easy maneuvering in parking situations, yet provides plenty of road input at speed. They wanted the option of an AutoStick® transmission that gives you the responsiveness of a manual. And in their ultimate power play, they saw to it that Stratus ES has an available 24-valve, single overhead cam V-6.

*But by meeting their demands, it seems we met yours, too. Because in J.D. Power and Associates latest APEAL Study℠, Stratus tied as the "Most Appealing Entry Mid-Size Car."**

For still more information, call 1-800-4-A-DODGE or visit our Web site at http://www.4adodge.com

DODGE Skip Barber DRIVING SCHOOL

Dodge is the official vehicle of the Skip Barber Driving School.

Stratus The New Dodge

**1996 Automotive Performance, Execution, and Layout Study, based on 25,492 consumer responses.* Always wear your seat belt.

PC WORLD

TOP 20 NOTEBOOK PCs

	POWER NOTEBOOKS	Last month	Month tested	Street price (12/9/96)	CPU	Comments
1	Gateway 2000 Solo 2100 S5-133 800/846-2000 www.gw2K.com	1	Jan 97	$3949	Pentium-133	Ultrafast, boosted by lots of RAM. $200 price cut.
2	Dell Latitude LM P133ST 800/388-8542 www.dell.com	2	Oct 96	$2999	Pentium-133	Very fast; good price for multimedia and large active-matrix screen.
3	Dell Latitude XPi P133ST 800/388-8542 www.dell.com	3	Aug 96	$3699	Pentium-133	Expensive for a unit without a CD-ROM drive, but still an excellent value.
4	Compaq LTE 5250 800/345-1518 www.compaq.com	4	Dec 96	$3759	Pentium-120	Well built and powerful, long battery life, $539 price drop; small screen.
5	Toshiba Portégé 650CT 800/457-7777 www.toshiba.com	–	NEW	$3999	Pentium-133	The standard-bearer for subnotebooks; beautiful screen but no CD-ROM drive.
6	HP Omnibook 800CT 800/322-4772 www.hp.com	–	NEW	$4370	Pentium-133	Nice subnote with roomy keyboard, but all the modules make for a wiry mess.
7	Sharp W100T 800/237-4277 www.sharp-usa.com	5	Feb 97	$3499	Pentium-133	Fast and lightweight; wide screen for viewing two Web pages side by side.
8	IBM ThinkPad 760E 800/426-2968 www.pc.ibm.com	7	Sept 96	$5014	Pentium-133	The Rolls-Royce of notebooks—great features, but expensive.
9	Micron Millennia TransPort 888/634-8799 www.micron.com	–	Aug 96	$3999	Pentium-133	Well built, with a good keyboard and bundled modem; $359 price drop.
10	NEC Versa 6030H 800/632-4636 www.nec.com	–	Nov 96	$4499	Pentium-133	A bit pricey, but has a nice design, bright screen, and built-in modem.
	BUDGET NOTEBOOKS					
1	Digital HiNote VP 800/642-4532 www.digital.com	4	Sept 96	$1799	Pentium-100	Light and well designed, great speed and bright screen, $200 price drop.
2	Gateway 2000 Solo 2100 S5-120 800/846-2000 www.gw2K.com	1	Jan 97	$2499	Pentium-120	Fastest budget notebook on chart, but battery life is second shortest.
3	Toshiba Satellite Pro 420CDS 800/457-7777 www.toshiba.com	2	Sept 96	$2298	Pentium-100	Great price for a multimedia notebook; internal AC adapter is a plus.
4	Compaq Presario 1010 800/345-1518 www.compaq.com	–	Feb 97	$2499	Pentium-120	Price drop of $499 makes this cool multimedia notebook a budget system.
5	HP Omnibook 5500CS 800/322-4772 www.hp.com	6	Jan 97	$2565	Pentium-100	Sturdy and well designed; can be upgraded with a CD-ROM drive for $375.
6	Toshiba Satellite 110CT 800/457-7777 www.toshiba.com	7	Nov 96	$2099	Pentium-100	A good first notebook if you want an active screen; needs more RAM.
7	AcerNote Light Multimedia 374 800/733-2237 www.acer.com	–	Feb 97	$2699	Pentium-133	Sleek, with a 6X CD-ROM drive and long battery life.
8	Mega Image MegaBook 911 800/250-1876 www.megai.com	–	NEW	$2699	Pentium-133	Very fast multimedia notebook.
9	AST Ascentia J20 800/876-4278 www.ast.com	5	Feb 97	$1799	Pentium-100	Price correction drops this sparse but fast unit down the chart.
10	BSI NP8662D 800/872-4547 www.bsicomputer.com	–	Aug 96	$2060	Pentium-120	Cheap for a multimedia notebook, but support is questionable.

Best Buy See features chart, page 220; performance chart, page 222.

[1] To order fax copies of system reviews, call 800/434-4495 from a touch-tone phone and use your credit card. You can order next month's reviews in advance: Power Desktops, Budget Desktops, or Notebook PCs Top 20 charts and capsule reviews ($9.95, available February 26).

PORTABILITY IS PRIMO on this month's Power Notebooks chart. The two newcomers, Toshiba's $3999 Portégé 650CT and Hewlett-Packard's $4370 Omnibook 800CT, are a study in how to pack features into a compact, highly mobile design. But one notebook that missed the Power chart exemplifies another aspect of portability: ruggedness. The Panasonic CF-25 is encased in ultrasturdy magnesium alloy. Unfortunately, the extra security pumps up the price of this otherwise straightforward business notebook to $3869. For more details, visit PC World Online (http://www.pcworld.com/t20pcsnaps).

SCORECARD

★ Overall rating	PC WorldBench score/ rating	Price	Vendor's system reliability	Features and design	Vendor's support quality/policies	Battery life (hours:min)/ rating	Traveling weight	Fax reprint number	Reader service number
90	186/outstanding	average	above average	outstanding	average/fair	3:03/good	average	3797	684
86	180/very good	inexpensive	average	very good	average/good	4:32/good	heavy	3779	685
86	166/very good	average	average	very good	average/good	5:20/very good	average	3771	686
86	149/good	average	above average	good	best/good	5:42/very good	average	3793	687
85	156/very good	average	above average	very good	below average/good	2:33/satisfactory	light	3810	688
84	168/very good	average	average [2]	good	[3]/fair	4:07/good	light	3811	689
84	165/very good	average	average [2]	very good	[3]/fair	2:26/satisfactory	light	3802	690
83	177/very good	expensive	average	very good	average/good	2:02/satisfactory	average	3773	–
83	163/very good	average	average [2]	very good	[3]/fair	3:22/good	heavy	3765	691
83	174/very good	average	average	very good	average/fair	3:04/good	heavy	3785	692
Power scorecard weightings ▶	Performance 22 percent	Price 14 percent	Reliability 22 percent	Features 16 percent	Support 10 percent	Battery life 8 percent	Weight 8 percent		
82	139/very good	inexpensive	[3]	good	[3]/fair	3:36/good	light	3776	693
82	171/outstanding	expensive	above average	good	average/fair	2:15/satisfactory	average	3805	694
81	142/very good	average	above average	good	below average/good	4:02/good	heavy	3771	695
80	143/very good	expensive	above average	good	best/fair	4:00/good	heavy	3803	696
79	152/outstanding	expensive	average [2]	good	[3]/fair	4:00/good	average	3807	697
79	98/good	average	above average	good	below average/fair	3:35/good	average	3792	698
78	142/very good	expensive	average [2]	good	[3]/fair	5:01/very good	average	3812	699
77	165/outstanding	expensive	[3]	very good	[3]/poor	4:38/good	heavy	3813	700
77	137/very good	inexpensive	below average	satisfactory	below average/good	3:25/good	light	3806	701
75	141/very good	average	[3]	good	[3]/worst	2:10/satisfactory	heavy	3814	702
Budget scorecard weightings ▶	Performance 14 percent	Price 22 percent	Reliability 22 percent	Features 16 percent	Support 10 percent	Battery life 8 percent	Weight 8 percent	All products:	908

[2] Limited data; score is based on responses for this company and average of all companies.
[3] Insufficient data.

POWER NOTEBOOKS

This Month's Best Buys

1 GATEWAY 2000 SOLO 2100 S5-133

PRO: Fast, great display, lots of memory

CON: Warranty is for only one year

Gateway 2000's Solo 2100 S5-133 notebook is breathtakingly fast and has the big screen, capacious storage, and multimedia features to make it a mobile power user's dream. It even comes with the Microsoft Office Professional suite of business applications. The $3949 price is competitive, especially for a system that comes with a heady 40MB of RAM. The abundant memory helps make this the fastest mobile system that we've ever tested: Its PC WorldBench score of 186 rivals that of many P-166 desktops. The Solo's 1.4GB hard drive is generous, and the 12.1-inch super-VGA screen is stunning, with sharp, bright, and clear display of text and graphics. The re- ▶

Gateway Solo S5-133

TOP 20 NOTEBOOK PCs — STANDARD FEATURES

	POWER NOTEBOOKS	CPU	Traveling weight (pounds)[1]	RAM (MB)	Hard drive (MB)	Color screen type	Screen diagonal (inches)	Screen resolution	Maximum screen colors	Battery type	Pointing device
1	Gateway 2000 Solo 2100 S5-133*	Pentium-133	8.2	40	1440	active	12.1	800 x 600	65,536	lithium ion	touchpad
2	Dell Latitude LM P133ST*	Pentium-133	8.8	16	810	active	12.1	800 x 600	256	lithium ion	touchpad
3	Dell Latitude XPi P133ST	Pentium-133	7.2	24	1215	active	11.3	800 x 600	256	lithium ion	trackball
4	Compaq LTE 5250	Pentium-120	8.4	16	810	active	10.4	800 x 600	65,536	NiMH	eraserhead
5	Toshiba Portégé 650CT	Pentium-133	6.6	16	1358	active	11.3	800 x 600	16.8 million	lithium ion	eraserhead
6	HP Omnibook 800CT	Pentium-133	6.6	16	1440	active	10.4	800 x 600	256	lithium ion	mouse
7	Sharp W100T	Pentium-133	6.6	16	1080	active	11.2	1024 x 768	16.8 million	lithium ion	touchpad
8	IBM ThinkPad 760E	Pentium-133	7.8	24	1080	active	12.1	800 x 600	65,536	lithium ion	eraserhead
9	Micron Millennia TransPort	Pentium-133	9	16	1215	active	11.3	800 x 600	65,536	lithium ion	eraserhead, touchpad
10	NEC Versa 6030H	Pentium-133	8.6	16	1358	active	12.1	800 x 600	65,536	lithium ion	touchpad
	BUDGET NOTEBOOKS										
1	Digital HiNote VP*	Pentium-100	6.8	16	810	dual-scan	10.4	800 x 600	256	NiMH	touchpad
2	Gateway 2000 Solo 2100 S5-120*	Pentium-120	8.2	16	810	dual-scan	11.3	800 x 600	65,536	lithium ion	touchpad
3	Toshiba Satellite Pro 420CDS	Pentium-100	8.8	16	772	dual-scan	11.3	800 x 600	65,536	lithium ion	eraserhead
4	Compaq Presario 1010	Pentium-120	8.6	16	814	dual-scan	11.3	800 x 600	65,536	NiMH	touchpad
5	HP Omnibook 5500CS	Pentium-100	8	16	1358	dual-scan	11.3	800 x 600	65,536	lithium ion	eraserhead
6	Toshiba Satellite 110CT	Pentium-100	7.4	8	814	active	11.3	800 x 600	65,536	NiMH	eraserhead
7	AcerNote Light Multimedia 374	Pentium-133	7.6	16	1080	dual-scan	11.3	800 x 600	65,536	lithium ion	touchpad
8	Mega Image MegaBook 911	Pentium-133	9.2	16	1374	active	12.1	800 x 600	65,536	NiMH	touchpad
9	AST Ascentia J20	Pentium-100	7	16	540	dual-scan	11.3	800 x 600	65,536	NiMH	eraserhead
10	BSI NP8662D	Pentium-120	9.6	16	810	dual-scan	11.3	800 x 600	256	NiMH	touchpad

*Best Buy ● Yes ○ No [1] Includes computer, adapter, power cord, floppy drive, and CD-ROM drive if notebook has one. [2] First year only. [3] Toll call.

movable 8X CD-ROM drive alternates in the options bay with the floppy drive or an optional second battery. Two speakers located in the keyboard's wrist rest are decent, but the included Koss headphone set sounds better. The single battery pack lasted for about 3 hours per charge in our test—pretty good for a notebook with this much power.

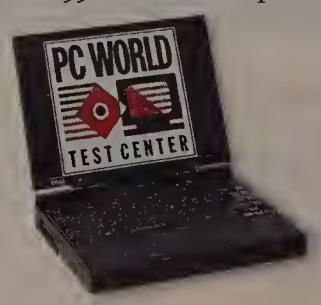
Good documentation is critical with portables. In striking contrast to the bland offerings that come with many notebooks, the Solo's manual is detailed and well illustrated. Gateway 2000's service quality is rated okay; we only wish that Gateway supported this notebook with a warranty longer than one year.

2 DELL LATITUDE LM P133ST

PRO: Large and crisp display, terrifically fast

CON: No modem at this price

You don't always have to spend a bundle to get a high-end notebook. Dell's Latitude LM P133ST costs $2999, a price that even budget-minded shoppers may find worth considering. And this Pentium-133 notebook is fast: It scored a terrific 180 on our PC WorldBench test suite, placing it high on the curve of test results for Pentium-133 *desktops*. The Latitude LM P133ST's 12.1-inch active-matrix color screen is vivid and spacious, with true colors and a viewable area that's close to what you get with a standard 14-inch desktop monitor.



Dell Latitude LM

In our test, the Dell managed to wring 4.5 hours per charge out of its lithium ion battery. The notebook's traveling weight of 8.8 pounds, while heavy, isn't bad for a multimedia portable. As with most power notebooks these days, the unit comes with both a floppy drive and a CD-ROM drive that you can swap in and out of the same bay. The Latitude LM P133ST comes with 16-bit on-board sound and good integrated stereo speakers, but a 28.8-kbps PC Card fax-modem costs extra.

		EXPANDABILITY					CUSTOMER SUPPORT			
CD-ROM drive speed	Modem speed (kbps)	Maximum RAM (MB)	Modular expansion bays	Bay for second battery	Optional docking station	Infrared port	Warranty for parts/labor (years)	Weekday toll-free support (hours)	Weekend support	Online support
8X	28.8	40	1	●	●	●	1/1	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
6X	–	40	1	○	●	●	3/1	24	Sat., Sun.	AOL, BBS, CIS, WWW
–	–	40	0	○	●	●	3/1	24	Sat., Sun.	AOL, BBS, CIS, WWW
6X	–	72	1	●	●	●	3/3	24	Sat., Sun.	AOL, CIS, Prodigy, WWW
–	28.8	80	0	○	●	●	3/3	24	Sat., Sun.	BBS, CIS, MSN, WWW
4X	–	48	0	○	●	●	3/3	12	–	AOL, BBS, CIS, WWW
–	28.8	32	0	○	○	●	3/3	24	Sat., Sun.	BBS, CIS, WWW
–	28.8	80	1	●	●	●	3/3	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
8X	28.8	48	2	●	○	●	3/1	24	Sat., Sun.	CIS, WWW
6X	28.8	48	1	●	●	●	3/3	24	Sat., Sun.	AOL, BBS, CIS, MSN, WWW
–	–	40	1	●	●	○	1/1	14	–	AOL, BBS, CIS, WWW
6X	–	40	1	●	●	●	1/1	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
6X	–	40	1	○	●	●	3/3	24	Sat., Sun.	BBS, CIS, MSN, WWW
4X	–	40	0	○	○	○	1/1	24	Sat., Sun.	AOL, CIS, Prodigy, WWW
–	–	64	1	●	●	●	3/3	12	–	AOL, BBS, CIS, WWW
–	–	40	0	○	●	○	1/1	24	Sat., Sun.	BBS, CIS, MSN, WWW
6X	–	64	0	○	○	○	3/3	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
6X	–	72	0	○	●	●	1/1	24 [2]	Sat.	WWW
–	–	40	0	○	○	●	3/3	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
4X	–	40	0	○	●	●	1/1	9 [3]	–	BBS

The Latitude's keyboard is well laid out, with large, full-travel keys; the only compromise is with the <F1> through <F12> keys, which are whittled down to about half the size of the other keys. The system's touchpad is smooth and responsive, allowing you to click either with the buttons or on the pad itself.

Dell's service for notebooks is okay, according to our ongoing reader fax-back survey. And the Latitude's support policies are strong: You get a three-year warranty on parts and one year on labor, a two-day factory repair turnaround policy, and 24-hour toll-free technical support. Both on-screen and printed documentation is thorough and well written.

New This Month

The following PCs made our Power Notebooks chart for the first time this month. For previously tested PCs on the chart, visit our Web page at http://www.pcworld.com/t20pcs.

5 TOSHIBA PORTÉGÉ 650CT

PRO: Lightweight, nice display

CON: Cramped keyboard

Big things come in small packages: At 6.6 pounds, Toshiba's Portégé 650CT has the power to be a primary computer. This Pentium-133 notebook shows off detailed text and graphics on its 11.3-inch active-matrix display, which supports 24-bit color. You also get a built-in 28.8-kbps modem, excellent documentation, and a three-year warranty.

Toshiba Portégé

The unit's small size means you get a small keyboard. With keys that range from small to tiny, the Toshiba is designed for slender-fingered typists. Thicker fingers could easily hit the <Page Up> key, for instance, when they were aiming for the <Enter> key. And unless you also have tiny hands, the 3.2-inch wrist rest won't serve well for support.

To keep things simple and light, Toshiba includes an external floppy drive. ▶

While that helps scale back on the traveling weight, there's always the danger that you'll forget the drive in your hotel room.

The 650CT's PC WorldBench score of 156—average for its processor class—and low 2.5-hour performance from its lithium ion battery make the $3999 price only vaguely compelling. Still, if the idea of a heavy notebook drags you down, this PC will be a weight off your shoulders.

6 HP OMNIBOOK 800CT

PRO: Lightweight, compact, powerful

CON: Pricey, lots of cables

You travel light—one breakfast bar on your way out the door, and just the right number of shirts in your suitcase. With weight requirements like that, the Hewlett-Packard Omnibook 800CT is a perfect companion. In fact, with the base unit weighing a meager 4.4 pounds, you might think that you packed your down-feather pillow by mistake.

HP Omnibook

HP packs some punch inside that slender package. This P-133 has a 10.4-inch active-matrix screen and 16MB of RAM. Its modular design sets it apart: The keyboard and ▶

TOP 20 NOTEBOOK PCs — PERFORMANCE

	POWER NOTEBOOKS	CPU	RAM (MB)	Secondary cache (K)	PC WorldBench score
1	Gateway 2000 Solo 2100 S5-133*	Pentium-133	40	256	186
2	Dell Latitude LM P133ST*	Pentium-133	16	256	180
3	Dell Latitude XPi P133ST	Pentium-133	24	256	166
4	Compaq LTE 5250	Pentium-120	16	256	149
5	Toshiba Portégé 650CT	Pentium-133	16	256	156
6	HP Omnibook 800CT	Pentium-133	16	256	168
7	Sharp W100T	Pentium-133	16	256	165
8	IBM ThinkPad 760E	Pentium-133	24	256	177
9	Micron Millennia TransPort	Pentium-133	16	256	163
10	NEC Versa 6030H	Pentium-133	16	256	174
	BUDGET NOTEBOOKS				
1	Digital HiNote VP*	Pentium-100	16	–	139
2	Gateway 2000 Solo 2100 S5-120*	Pentium-120	16	256	171
3	Toshiba Satellite Pro 420CDS	Pentium-100	16	–	142
4	Compaq Presario 1010	Pentium-120	16	–	143
5	HP Omnibook 5500CS	Pentium-100	16	256	152
6	Toshiba Satellite 110CT	Pentium-100	8	–	98
7	AcerNote Light Multimedia 374	Pentium-133	16	–	142
8	Mega Image MegaBook 911	Pentium-133	16	256	165
9	AST Ascentia J20	Pentium-100	16	–	137
10	BSI NP8662D	Pentium-120	16	256	141

*Best Buy

Word 7.0 for Windows 95 · Excel 7.0 for Windows 95 · Picture Publisher 6.0 for Windows 95 · Paradox 5.0 for Windows · WordPerfect 6.1 for Windows · 1-2-3 release 5 for Windows

HOW WE TEST All systems are tested with PC WorldBench, PC World's application-based benchmark. A higher PC WorldBench score is better. All PCs have Windows 95, and video resolution is set to 800 by 600 in 256 colors. We run automated scripts on six popular business applications, performing common tasks such as spelling checks, scrolls, saves, sorts, and recalculations. The PC WorldBench score is a sum of the weighted result of each script: Word (25 percent), Excel (20 percent), Picture Publisher (15 percent), Paradox (15 percent), WordPerfect (15 percent), and 1-2-3 (10 percent). For more details on our benchmark and how we run it, see PC World Online (http://www.pcworld.com).

C O M P U T I N G W I T H O U T L I M I T S™

When The Armed Forces Realized That Our TurboChip Could More Than Double The Speed Of Their 486s, They Decided To Pick Some Up.

The military has to be able to act quickly, and so do their computers. Maybe that's why they decided to upgrade their 486s with Kingston® TurboChips—an approved component on the GSA purchasing schedule. The TurboChip™ can extend the life of your fleet, too, whether you have 486-based DX2, DX, SX2, or SX systems. In the words of an Army computer scientist at the Army's Pentagon Automation Technology Branch, "The Kingston chip was completely compatible with all our systems and had an amazing performance improvement."* The TurboChip's 5×86 clock-quadrupled technology helps your system run up to three times faster with all the power you need to run today's demanding software. Designed with AMD's Am 5×86–P75 CPU, it upgrades most IBM-compatible desktop systems. And since the TurboChip is a chip-for-chip replacement upgrade, it's easy to install. Plus, it preserves your system configuration. Call today to find out why the military says, "Looking at the true cost of installing an upgrade CPU, the Kingston unit is a steal."

Unleashes the power of Windows NT®4.0

Kingston® TECHNOLOGY

For more information call us at (800) 588-5517 *Visit our Web site: http://www.kingston.com/pcw.htm*

*10/31/96 evaluation by Ron Jarmuth, Chief Automation Technology Branch, HQDA–IMCEN, Pentagon Automation Technology Branch. Kingston Technology Company, 17600 Newhope Street, Fountain Valley, CA 92708 USA, (714) 435-2600, Fax (714) 435-2699. © 1996 Kingston Technology Company. All rights reserved. Kingston is a registered trademark and Computing Without Limits and TurboChip are trademarks of Kingston Technology Company. Windows NT is a registered trademark of Microsoft Corporation.

Circle 128 on reader service card

unique side-attached mouse are comfortable even after long use. But while the size and design of this notebook are a blessing, if you need to use the external 4X CD-ROM or floppy drive modules, you're going to be caught in a morass of wires. With both modules connected and the base unit plugged in, you'll have cables snaking across your desk.

You'll pay $4370 for this combination of power and portability, but at least you'll get more than 4 hours from its lithium ion battery. And for an elegant notebook that you can carry easily, you'll find few other contenders in the HP Omnibook 800-CT's weight class.

BUDGET NOTEBOOKS

This Month's Best Buys

1 DIGITAL HINOTE VP

PRO: Good P-100 performance, good battery life, bright display, affordable

CON: No built-in CD-ROM option

A $200 price drop to $1799 helps Digital's HiNote VP top this month's Budget Notebooks chart. With a PC WorldBench score of 139, it's among the fastest Pentium-100 notebooks we've tested, outperforming several P-120s. Its 3.6-hour battery life is impressive considering that the HiNote uses a nickel–metal-hydride battery instead of the more expensive and longer-lasting lithium ion kind.

Digital HiNote VP

The HiNote's keyboard is comfortable and responsive. The 10.4-inch dual-scan screen is vivid and can display 800 by 600 resolution. The HiNote is not a multimedia portable, although it comes with 16-bit sound and a monaural speaker. It is, however, extremely lightweight at just 6.8 pounds. The optional internal AC adapter can either take the place of the floppy drive or rest on your desk.

The bundled software is a mixed bag of marginally useful applications. Our system came with CompuServe and America Online software, but no modem. For file transfers it came with LapLink, but you have to supply the cables. (The HiNote VP doesn't have an infrared port.)

Digital backs the HiNote VP with a one-year warranty. Toll-free support is limited to weekdays, but you can get round-the-clock support if you buy Digital's Passport service, which costs $49 the first year.

2 GATEWAY 2000 SOLO 2100 S5-120

PRO: Fast, attractive display, modular design

CON: So-so battery life

If you've been cruising for a speedy multimedia notebook with a top-notch display at a budget price, slow down and take a good look at Gateway's Solo 2100 S5-120. It's rare to get the speed of a power note along with a high-quality color screen for just $2499.

With a PC WorldBench score of 171, this sleek, black, and sturdily constructed model is far and away the fastest unit on the Budget Notebooks chart; it even outpaces most of the power notebooks. The dual-scan display is to computer screens what Waterford is to crystal: clear, clean, and classy. There are larger active-matrix displays on the market (such as the 12.1-inch models from Dell and IBM), but for most people this 11.3-inch screen is more than adequate—sharp and bright enough for use over extended periods of time.

The Solo 2100 S5-120's modular drive bay lets you easily swap in the included 6X CD-ROM drive, a floppy drive, or an extra battery—a common configuration these days. With the Solo, however, you can also change devices while the notebook is running. The keyboard and broad wrist rest make typing comfortable, and the touchpad is roomy, with two large buttons.

The 2.3-hour battery life we got in our run-down test was a little disappointing. You can plug an optional second battery pack into the modular drive bay, doubling the time you can run the notebook away from wall power.

Gateway Solo S5-120

Gateway provides great documentation.

New This Month

The following PC made our Budget Notebooks chart for the first time this month. For previously tested PCs on the chart, visit our Web page at http://www.pcworld.com/t20pcs.

8 MEGA IMAGE MEGABOOK 911

PRO: Fast, long battery life

CON: Cheap keyboard, generic documentation

The $2699 Mega Image MegaBook 911 notebook won't save your life, but it certainly will get the job done. Scoring 165 on our PC WorldBench test suite, this Pentium-133 multimedia portable ranked in the top 15 percent of all the P-133 notebooks that we've tested. Its single NiMH snap-out battery also lets you work away from an outlet for more than 4.5 hours.

Mega Image MegaBook

Housed in a dark gray case, the MegaBook 911's components aren't cutting-edge, but they're more than adequate. The 12.1-inch active-matrix screen is crisp, the touchpad is responsive, and the 1.4GB hard drive provides plenty of storage. If you're a multimedia hound on the go, you can tote the swappable 6X CD-ROM drive in the notebook's carrying case.

It seems that Mega Image compromised quality on some of the unit's components. The keys on the Windows 95 keyboard lack full travel, and the documentation is just a generic guide on the basics of portable computers. The company offers toll-free phone support, but we don't have enough reader feedback to rate its service and PC reliability. ■

Beyond the Top 20

We evaluated these systems along with the others, but they didn't score high enough to reach the Top 20 Notebook PCs chart. For write-ups, see PC World Online (http://www.pcworld.com/t20pcsnaps).

- AMS Travel Pro 185
- Micro Express NB5133A
- Nimantics NX-Lite 133 Series
- Panasonic CF-25
- Sceptre Soundx Series 4000
- TI TravelMate 6160

AN UNKNOWN ENGINEER. A TWO-HEAD COLOR PRINTER YOU'VE NEVER HEARD OF. AND 10 REASONS WHY YOU SHOULD CARE.

#1 Two heads are better than one. (But your mother probably already told you that.)

#2 You're tired of your black inks getting wet and running into Rorshach test patterns.

#3 You're sick of your kids whining how Jimmy's dad prints out cooler T-shirts than you do.

#4 You don't think a color inkjet printer should cost as much as a military-issue hammer.

#5 You really don't care if your inkjet printer comes from a company that builds multi-million dollar supercomputers to solve deep problems in pure mathematics.

#6 Engineering types are all pretty much faceless guys to you anyway.

#7 You're tired of calling the psychic hotlines to find out how much ink is left in your print cartridges.

#8 You're tired of switching color and black ink cartridges in and out, in and out, in and out, in and out, in and out, in and out...

#9 You're comfortable with the idea of grown men wearing paper bags on their heads.

#10 OK. You don't really care about our unknown engineer. But for printing vivid colors and true black on the same page at the same time – without constantly swapping ink heads in-and-out – you'll want our two-head Lexmark® 2030 Color Jetprinter.™ It uses water-resistant black ink that won't run. And it comes loaded with software that lets you print everything from greeting cards to T-shirts. In stores now for just $199.*

We may be unknown to you because we've been making printers exclusively for business and have just now started to make high-quality printers for people to use at home.

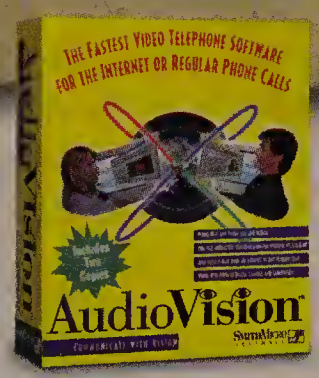
PRINT LEXMARK™

CALL **1-800-358-5835** FOR A STORE NEAR YOU.

www.lexmark.com

©1997 Lexmark International, Inc. All rights reserved. Lexmark, the Print Lexmark logo and Color Jetprinter are trademarks of Lexmark International, Inc. LivePix and the LivePix logo are trademarks of Live Picture, Inc. *Prices may vary by store.

See what you've been missing on the Internet.

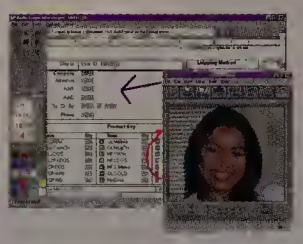


You've got Internet e-mail, Internet chat sessions and even Internet telephone calls. But if you're not communicating with live video and audio over the Internet – you're missing the picture.

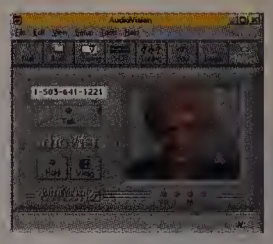
AudioVision 2.0 is the amazing software that lets you communicate with live two-way audio and video over the Internet and by direct telephone connection. And AudioVision is fast, with transmission rates up to 15 frames a second over ordinary telephone lines.

With AudioVision, you can send VMail™, video e-mail that any Windows user can view – without additional hardware. And since it takes two to communicate, AudioVision includes two copies, plus a copy of AudioVision/324, the special edition of AudioVision that lets you connect with standard H.324 video phones worldwide.

AudioVision supports virtually all major digital cameras and most capture boards and it's a breeze to install and use. So stop missing the picture, pick up AudioVision or download a free demo version at www.smithmicro.com

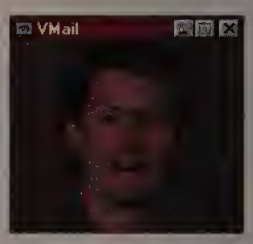


call the plant in asia over the Internet and discuss scheduling using the whiteboard



call grandma and show her how the kids have grown

call home from a business trip using your laptop



send a 2 minute VMail to a customer in a file that's less than a megabyte

SMITHMICRO SOFTWARE
A Better Way to Communicate.

See us on the Web at www.smithmicro.com or call 800-964-7674 for a dealer near you.

All trademarks and registered trademarks are the properties of their respective owners. ©1999 Smith Micro Software, Inc. All rights reserved.

Circle 211 on reader service card

View the picture the moment you take it. Then upload it to a PC and the world can see.

Shoot from any angle
The lens rotates a full 270 degrees so you can set it to the angle you want.

LCD DIGITAL CAMERA
QV-100

Included software

Includes Microsoft Internet Explorer · Adobe PhotoDeluxe · ixlaphoto

Shoot and view
Take a picture and view it instantly on the brilliant 1.8" color viewfinder. The QV-100 stores up to 192 images at standard resolution or 64 fine resolution VGA images.

Connect to a TV for big-screen viewing
Enjoy viewing your images with the whole family, or leave a lasting impression at business presentations.

Upload images to a PC
To create effective reports, proposals, or other documents, simply upload the images to your PC.

Instant prints of digital images
Connect to the QG-100 Color Printer and produce color prints of images as soon as you shoot them.

New PC Partners from CASIO
More capability, more versatility, more mobility.

CASSIOPEIA is a handheld PC developed together with Microsoft® and designed for Windows®95.

HANDHELD PC
CASSIOPEIA
A-10 2MB RAM A-11 4MB RAM

Designed for Microsoft® Windows®CE

Automatic data links with a Windows® 95 desktop PC
Simply attach the CASSIOPEIA to the optional large/mini dock connected to a Windows® 95 desktop PC for easy linking and data synchronization.

Built-in Microsoft® Pocket Word/Microsoft® Pocket Excel

Powerful New Microsoft® Windows® CE Operating System

Internet access on the go
Use Inbox to send and receive e-mail anywhere you are.
Use Microsoft® Pocket Internet Explorer to surf the Net.
*Internet access requires a modem and the subscription to an Internet provider.

Backlit display makes for easy viewing, even in total darkness.

*All displays shown in this advertisement are photographic facsimiles.

•Microsoft, Windows, the Windows Logo and the Microsoft Internet Explorer Logo are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
•Adobe is a registered trademark of Adobe Systems Incorporated.
•Adobe PhotoDeluxe is a trademark of Adobe Systems Incorporated.
•IXLA and ixlaPhoto are trademarks of ISR Group Limited.

CASIO®
GIVES YOU VISION

© 1996 CASIO Inc. 570 Mt. Pleasant Avenue, Dover, NJ 07801
TEL 201-361-5400 FAX 201-361-3819 http://www.casio.com/
For the stores nearest you, call 1-800-327-1266 now.

Win a Quantex QP5/200MMX SM-3

Have you ever contacted your PC maker for service and support? Or has your PC been trouble-free? Tell us about it! Fill out and fax in the questionnaire below—even if you have no problems to report, and even if you have responded to this survey before—and we'll enter you in a drawing to win a Quantex QP5/200MMX SM-3, a Pentium-200 MMX PC in this month's Top 20. Send in a separate copy of the survey for each of your PCs.

HOW TO ENTER: FOR BEST RESULTS, PHOTOCOPY THIS PAGE. Fax your completed survey to 415/357-4522. Do NOT fax a cover page. Or mail it to *PC World*, Box 3-SS, c/o 800-SCAN, 543 Howard St., San Francisco, CA 94105-3013. Surveys must be received by March 31.
PRIZE: One entry per person. IDG employees and their families are not eligible. One prize will be awarded through a random drawing. *PC World* will make reasonable efforts to contact winners by telephone and fax. If *PC World* is unable to do so within 30 days of the drawing, a new winner will be selected. No purchase necessary. Void where prohibited by law.
HOW TO FILL OUT THE FORM: Print your name (block capital letters) and your fax number, and fill the circles for each digit of your daytime phone number. Then fill out the questionnaire. AVOID GOING OUTSIDE THE LINES!

LAST, FIRST NAME

FAX NUMBER — —

ZIP CODE

Please fill in your daytime phone number below.

1	○	○	○	○	○	○	○	○	○	○
2	○	○	○	○	○	○	○	○	○	○
3	○	○	○	○	○	○	○	○	○	○
4	○	○	○	○	○	○	○	○	○	○
5	○	○	○	○	○	○	○	○	○	○
6	○	○	○	○	○	○	○	○	○	○
7	○	○	○	○	○	○	○	○	○	○
8	○	○	○	○	○	○	○	○	○	○
9	○	○	○	○	○	○	○	○	○	○
0	○	○	○	○	○	○	○	○	○	○

How did you get this copy of *PC World*?
○ By subscription ○ On the newsstand ○ From someone else

ABOUT YOUR PC

Who is the manufacturer of the PC you use most frequently?

○ Acer ○ Acma ○ ALR ○ Apple ○ AST ○ Austin (IPC) ○ Compaq ○ Compudyne ○ Comtrade ○ CTX ○ Dell ○ Diamond
○ Digital (DEC) ○ DTK ○ EPS ○ Epson ○ Everex ○ Fujitsu ○ Future Tech ○ Gateway 2000 ○ Hewlett-Packard ○ HiQ ○ Hitachi ○ Hyundai
○ IBM ○ Insight ○ Intelesys ○ Leading Edge ○ Micro Express ○ Micron ○ Midwest Micro ○ MIS ○ Nat'l Micro ○ NCR ○ NEC ○ Netis
○ Packard Bell ○ Panasonic ○ PerComp ○ Pionex ○ Polywell ○ Premio ○ Quantex ○ Robotech ○ Samsung ○ Sharp ○ Sony ○ Swan
○ Tangent ○ Texas Instruments ○ Toshiba ○ Twinhead ○ Unisys ○ USA Flex ○ Vektron ○ WinBook ○ Xi ○ Zenith (ZDS) ○ Zenon ○ Other

What size is this PC?
○ Desktop ○ Notebook/laptop ○ Handheld

What is the CPU?
○ PowerPC ○ Pentium ○ Pentium Pro ○ 80486 ○ Other

Where did you buy this PC?
○ Local dealer ○ Mail/phone order ○ Direct from field sales force ○ Membership discount store ○ Computer superstore ○ Home electronics store ○ Retail store ○ Value-added reseller ○ Other

After ordering, how long did it take to get your PC?
○ Less than 1 week ○ 1-2 weeks ○ 3-4 weeks ○ More than 4 weeks

Who set up your PC?
○ Dealer/retailer/VAR ○ Staff computer technician ○ Self or coworker

Where do you use this PC? ○ At home/home office ○ At work ○ Both

WHEN YOU FIRST GOT YOUR PC

When did you buy this PC? (Specify month and year.)

○ Jan ○ Feb ○ Mar ○ Apr ○ May ○ June ○ July ○ Aug ○ Sept ○ Oct ○ Nov ○ Dec ○ 92 ○ 93 ○ 94 ○ 95 ○ 96 ○ 97

When you first set up your PC, were any components "dead on arrival" (DOA)?
○ Yes ○ No ○ Don't know

If so, which component was it? (Mark all that apply.)
○ Battery ○ CD-ROM ○ CPU ○ Floppy drive ○ Graphics/video board ○ Hard drive ○ Keyboard ○ Memory ○ Modem/fax board ○ Monitor/screen ○ Motherboard ○ Mouse ○ Power supply ○ Sound board ○ Other

Did your problem occur only after you added your own hardware or software?
○ Yes ○ No ○ Don't know

Would you buy this brand of PC again?
○ Yes ○ No ○ Not sure

How many times have you had a problem with this PC?
○ No problem ever ○ One ○ Two ○ Three ○ Four ○ More than four

If you have had a problem that you have not reported in a previous survey, please fill out the right column. If you are reporting a DOA for the first time, skip to the service section.

NEW PROBLEM REPORT

Answer for the most recent problem—*other than DOA*—not reported in a prior surve

When did this problem occur? (Specify month and year.)

○ Jan ○ Feb ○ Mar ○ Apr ○ May ○ June ○ July ○ Aug ○ Sept ○ Oct ○ Nov ○ Dec ○ 92 ○ 93 ○ 94 ○ 95 ○ 96 ○ 97

How long after you purchased your PC did the problem occur?
○ Less than 1 month ○ 1-3 months ○ 4-6 months ○ 7-12 months ○ More than 12 months ○ Not sure

Did the problem occur as a result of adding new hardware or software?
○ Yes ○ No ○ Don't know

Did the problem occur under warranty?
○ Yes ○ No ○ Don't know

What was the problem finally identified as? (Mark all that apply.)
○ Faulty component ○ Incorrectly installed software ○ Wrong configuration ○ Faulty peripheral ○ Device conflicts ○ OS problem ○ Other ○ Don't kno

If a component failed, which one was it? (Mark all that apply.)
○ Battery ○ CD-ROM ○ CPU ○ Floppy drive ○ Graphics/video board ○ Hard drive ○ Keyboard ○ Memory ○ Modem/fax board ○ Monitor/screen ○ Motherboard ○ Mouse ○ Power supply ○ Sound board ○ Other

SERVICE

Please use this section to describe the service and support you received for the problem reported above or the DOA reported at left.

Who fixed your PC?
○ Manufacturer ○ Dealer/store where purchased ○ Manufacturer's authorized repair technician ○ Self ○ Other

What types of service and support did you receive? (Mark all that apply.)
○ Phone ○ On site ○ In store ○ System swap ○ Component swap ○ Factory return

If you received phone service, how long were you on hold?
○ Not at all ○ Less than 1 minute ○ 1-2 minutes ○ 3-5 minutes ○ 6-10 minutes ○ 11-20 minutes ○ More than 20 minutes

How long did it take before you talked to the person who finally helped you?
○ Less than 15 minutes ○ 15 minutes-1 hour ○ 2-5 hours ○ 6-10 hours ○ 11-24 hours ○ 1½-2 days ○ 3-5 days ○ 1 week or more

How long did it take to resolve the problem completely?
○ 1-2 days ○ 3-7 days ○ 8-14 days ○ 15-30 days ○ More than 1 month ○ Never resolved ○ Awaiting resolution

Was it resolved to your satisfaction?
○ Yes ○ No

How would you rate the person(s) who helped you?

	Poor		Good		Excellent
Courtesy	○	○	○	○	○
Knowledge	○	○	○	○	○
Follow-through	○	○	○	○	○

Based on the service and support you received, would you buy this brand of PC again?
○ Yes ○ No

On the whole, how satisfied are you with the service and support you received?
○ Not at all ○ ○ Satisfied ○ ○ Extremely satisfied

PLEASE FAX TO 415/357-4522. FOR BEST RESULTS, PHOTOCOPY THIS PAGE.

Learn to Program the Sights and Sounds of Multimedia!

To prepare you for a money-making new career in multimedia programming, NRI gives you hands-on experience with a full-featured Pentium® 133 MPC-2. You even learn how to take advantage of the Internet, today's newest computing frontier. No other at-home training compares!

Prepare now for a high-paying, cutting-edge career!

The multimedia revolution has changed forever the way the world lives, learns, plays, and works with computers.

Opportunities to create interactive multimedia programs are everywhere: in retail, to increase sales with immediate, point-of-purchase kiosks; in education, to increase students' level of understanding and retention in all subject areas; and in business and industry, for more persuasive sales presentations and for cost-efficient and effective skills training.

You can take advantage of this growing specialty field with NRI training, the only training of its kind to offer you a true, hands-on learning experience.

Get everything you need for a fast start

NRI's unique modular training gets you started fast with step-by-step lessons and hands-on projects that bring theory to life and reinforce every important concept. Your training is *complete* computer programming training, starting with the basics and moving on to the more advanced languages used in today's multimedia authoring programs.

Best of all, you train with and keep a Pentium® 133 computer, featuring:

- 8 meg RAM
- 1 gigabyte hard drive
- Super VGA color monitor; 1 meg video memory
- 28,800 baud fax/modem with 10 free hours of *America Online*
- Netscape Navigator™ Web browser
- 8X CD-ROM drive
- 16-bit sound card with speakers
- Windows 95
- Multimedia Toolbook authoring software

NEW! NRI's PC Option Plan lets you choose the features you want most!

Now, with NRI's new PC Options Plan, you can keep up with late-breaking advances in technology by upgrading your computer system at special student rates. You'll get all the details shortly before your computer is scheduled for shipment. It's NRI's state-of-the-art guarantee!

Send today for FREE catalog or call 1-800-321-4634, Ext. 2229

Turn for more details →

Pentium is a registered trademark of Intel Corporation.
Windows 95 is a registered trademark of Microsoft Corporation.

SEND TODAY FOR YOUR FREE CATALOG

NRI Schools
4401 Connecticut Ave., NW, Washington DC 20008

OR GET YOUR DEGREE!
- ☐ NEW! AAS Degree in Accounting
- ☐ NEW! AAS Degree in Business Management

☑ **Check one FREE career catalog only. High school diploma or GED recommended for all courses, required for degree programs.**

- ☐ **MULTIMEDIA PROGRAMMING**
- ☐ Networking with Windows NT
- ☐ Microcomputer Servicing
- ☐ Visual Programming in C++
- ☐ TV/Video/Audio Servicing
- ☐ Industrial Electronics & Robotics
- ☐ Basic Electronics
- ☐ Bookkeeping & Accounting
- ☐ Fiction/Nonfiction Writing
- ☐ Desktop Publishing with PageMaker
- ☐ Computer-Aided Drafting
- ☐ Computer Programming
- ☐ Mastering Microsoft Office
- ☐ Webmaster

For career courses approved under GI Bill, ☐ check here for details.

Name_____ Age_____

Address_____

City/State/Zip_____

A Division of The McGraw-Hill Companies

Accredited Member, Distance Education and Training Council

1910-0397

Get hands-on programming skills, multimedia know-how, Internet savvy, and more

Only NRI Gives You the Background You Need To Earn Top Dollar as Today's Multimedia Programmer!

To master **computer programming,** you start with the basics, then move on to the more advanced languages used in today's multimedia authoring programs. This portion of your training covers microcomputer hardware and software, programming fundamentals, BASIC programming techniques, Windows 95 routines, Multimedia Toolbook programming, and OpenScript strategies.

To learn the principles of **multimedia project development,** you study NRI's in-depth coverage of every important multimedia component. This portion of your training explores management of graphic file formats, principles of video display, CD-ROM technology, text in multimedia, audio files in multimedia, plus video and animation in multimedia.

Now NRI's Multimedia Programming students take their skills to a new level. NRI's just added exclusive instruction on **PC communications and the Internet.** Not only do you learn the lingo and techniques widely associated with this new frontier, but you also access NRI's new OnLine Connection and even browse the World Wide Web with Netscape Navigator™ software.

SEND TODAY FOR YOUR FREE NRI CATALOG!

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 10008 WASHINGTON, D.C.

POSTAGE WILL BE PAID BY ADDRESSEE

NRI Schools

4401 CONNECTICUT AVENUE NW
WASHINGTON DC 20078-3543

There's no better training value anywhere!

Consider all that NRI training includes: expertly written lessons, hands-on projects, top-notch computer and software, lifetime instructor support, online interaction, 24-hour TeleGrading services, a respected diploma, and, of course, the convenience of at-home study. You don't even need any experience to get started. Just send away for NRI's FREE, FULL-COLOR CATALOG for full details.

If the card is missing, write to NRI Schools, 4401 Connecticut Ave., NW, Washington, DC 20008. Or...

Call 1-800-321-4634, Ext. 2229

Or, visit our Home Page at http://www.mhcec.com

PC WORLD

TOP 10 PRINTERS

	MONOCHROME WORKGROUP PRINTERS	Month tested	Street price (11/12/96)	Overall rating	Speed for plain text (ppm)	Speed for full-page graphics (ppm)	Comments	Reader service number
1	IBM Network Printer 12 800/426-3333 http://www.ibm.com	retested this month	$1250	92	8.9	2.4	**FEATURES:** 12-ppm laser. Standard 4MB of RAM, 600-by-600-dpi resolution, 250 sheets input, 270 output. **PRO/CON:** Fastest full-page graphics speed on the chart, very good print quality, control panel is easy to use. Support policies include 24-hour, 7-day technical help. Manuals are numerous and can be confusing.	–
2	Lexmark Optra Lx+ 800/891-0331 http://www.lexmark.com	July 96	$1950	89	10.7	1.4	**FEATURES:** 16-ppm laser. Standard 4MB of RAM, 600-by-600-dpi resolution (true 1200 dpi with at least 8MB of RAM), 500 sheets input and output. **PRO/CON:** Excellent print quality, easy-to-read LCD labels on control panel. Somewhat slow, especially printing full-page graphics; IBM laser is faster on graphics.	611
3	Lexmark Optra R+ 800/891-0331 http://www.lexmark.com	Nov 96	$1199	88	10.8	1.2	**FEATURES:** 16-ppm laser. Standard 4MB of RAM, 600-by-600-dpi resolution (true 1200 dpi with at least 8MB of RAM), 200 sheets input, 250 output. **PRO/CON:** Print quality, speed, and design resemble the Optra Lx+'s, but paper capacity is lower. Price drop to $1199 makes it the lowest-priced laser on the chart.	612
4	HP LaserJet 5M 800/752-0900 http://www.hp.com	July 96	$1799	87	9.5	1.1	**FEATURES:** 12-ppm laser. Standard 6MB of RAM, 600-by-600-dpi resolution, 250 sheets input and output. **PRO/CON:** Very good print quality, easy-to-use control panel. Comes with ethernet standard, unusual for a workgroup printer. Full-page graphics speed is the slowest on the chart.	613
5	Okidata OL1200/PS 800/654-3282 http://www.okidata.com	July 96	$1399	87	8.9	2.3	**FEATURES:** 12-ppm LED. Standard 6MB of RAM, 600-by-600-dpi resolution, 500 sheets input, 250 output. **PRO/CON:** Inexpensive, good print quality and performance. Control panel not as intuitive as others on the chart. On-site service free for first year.	614
	COLOR WORKGROUP PRINTERS							
1	HP DeskJet 1600CM 800/752-0900 http://www.hp.com	July 96	$1999	89	4.4	0.5	**FEATURES:** 8-ppm monochrome/2-ppm color ink jet. Standard 6MB of RAM, 600-by-600-dpi monochrome, 300-by-300-dpi color resolutions. **PRO/CON:** Inexpensive for good print quality and adequate speed, PostScript and ethernet are included. Ink jet pages, unlike a laser's, are sensitive to moisture and light.	615
2	Tektronix Phaser 350 800/835-6100 http://www.tek.com	Jan 97	$2970	88	3.4	0.9	**FEATURES:** 6-ppm solid ink printer. Standard 8MB of RAM, 300-by-300-dpi monochrome and color resolutions. **PRO/CON:** Stellar color quality, fastest graphics speed on the color chart, solid ink blocks are easy to load, black ink is free for as long as you own printer. Text speed is slow, takes only letter-size paper.	616
3	Xerox XPrint 4920 Plus 800/349-3769 http://www.xerox.com	Sept 96	$6500	86	5.5	0.3	**FEATURES:** 12-ppm monochrome/3-ppm color laser. Standard 16MB of RAM, 600-by-600-dpi monochrome and color resolutions. **PRO/CON:** Superb print quality, optional $1341 feeder gives it the highest maximum paper capacity (1750) of any color laser on the chart. Slow at printing full-page graphics.	617
4	Tektronix Phaser 550 800/835-6100 http://www.tek.com	July 96	$5945	85	5.6	0.5	**FEATURES:** 14-ppm monochrome/5-ppm color laser. Standard 8MB of RAM, 600-by-600-dpi monochrome and color resolutions (true 1200 dpi with 24MB of RAM). **PRO/CON:** Least expensive color laser on the chart, accommodates labels and manual double-sided printing. Proprietary RAM is expensive.	618
5	HP Color LaserJet 5M 800/752-0900 http://www.hp.com	July 96	$7395	85	6.9	0.9	**FEATURES:** 10-ppm monochrome/3-ppm color laser. Standard 24MB of RAM, 300-by-300-dpi monochrome and color resolutions. **PRO/CON:** Fastest color laser we've tested, ethernet standard. Print quality is good for text and simple graphics, but not for continuous-tone images like photographs.	619

Best Buy http://www.pcworld.com/t10printers Windows 95-certified Plug and Play All products: 902

HOW WE TEST The overall rating for both monochrome and color workgroup printers is based on print quality (27 percent), price (20 percent), features and ease of use (20 percent), speed (15 percent), service and support (13 percent), and cost of consumables (5 percent). For all ratings, higher is better. Data based on tests designed and conducted by the PC World Test Center. All rights reserved.

AFTER AN IMPRESSIVE run of seven months, the Lexmark Optra Lx+ has been knocked off the number one spot on the monochrome printers chart by the IBM Network Printer 12. The IBM debuted in January in third place, behind Lexmark's Optra R+. Then IBM raised the printer's standard RAM amount from 2MB to 4MB. Tested anew, the Network Printer 12's faster graphics speed bumped both Optra lasers down a ▶

notch in the overall rankings. The Lexmark Optra R+'s small drop in street price, from $1300 to $1199, didn't make up for the speed difference. The Digital Colorwriter LSR 2000+ color laser we tested this month didn't make the chart because it was too expensive and fairly slow.

A RAM BOOST HELPS IBM

AFTER WE FIRST TESTED the Network Printer 12 in January, IBM increased the printer's standard RAM to 4MB. In our tests the additional RAM boosted the IBM's text speed only 2 percent, from 8.7 pages per minute to 8.9 ppm—about 18 percent slower than the Optras. However, its full-page graphics speed increased 20 percent to 2.4 ppm—much faster than either Lexmark Optra laser.

The IBM puts out fine-looking grayscale graphics and line art, matching the quality of both Optra models. The Optras still print the crispest text we've seen from a laser, but the IBM's deep black toner helps its text look almost as sharp.

Smaller offices will appreciate the IBM's compact size and relatively quiet operation. Clearly labeled buttons make it easy to choose settings from the printer's extensive set of menus.

The IBM's built-in auxiliary tray handles envelopes and card stock well, but if you plan to use the tray with PostScript applications make sure you have the most recent version of IBM's PostScript driver. The version that came with our printer didn't recognize the auxiliary tray. IBM claimed not to know about this glitch, but an updated PostScript driver we downloaded from the company's Web site eliminated the bug.

IBM's strong service and support policies include round-the-clock toll-free phone support. The Network Printer 12's manuals are comprehensive to a fault: Do we really need a 100-page booklet warning us in 13 languages not to open the printer and look at the laser beam? And the angled-perspective drawings can be confusing.

The Network Printer 12 had a problem printing our Adobe Illustrator PostScript test file in the PCL printer language. Other printers we've tested in PCL could print the Illustrator file, although it usually took them longer than a PostScript printer needs. The IBM failed until we changed a setting in its driver to convert the Illustrator file to a rasterized image.

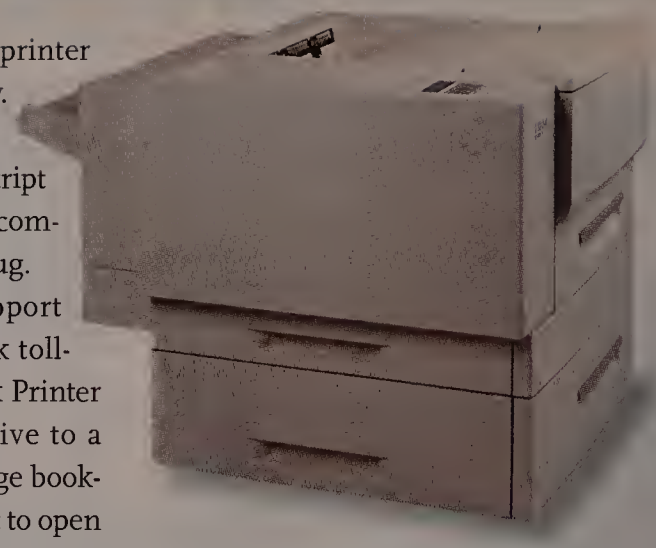
The Network Printer 12 is not Windows 95–certified Plug and Play; an error on IBM's part caused us to misreport this fact in the January issue. The printer installed smoothly nonetheless.

DIGITAL'S NEW COLOR LASER

THE DIGITAL Colorwriter LSR 2000+ is an upgrade to the original Colorwriter LSR 2000, which we tested for our workgroup printer roundup last July. The Colorwriter LSR 2000 was the first color laser we'd seen with the EFI Fiery-driven controller, which was supposed to make color lasers perform much faster. Unfortunately, this has never been borne out in our tests, and Fiery-equipped printers are pricey. We tested the less-expensive version of the Colorwriter LSR 2000+ with 16MB of RAM, but at $8074 it costs hundreds of dollars more than any color printer on the chart. (A version with 32MB of RAM has a list price of $10,699.) While the Digital's half-page-per-minute graphics speed is average for a color workgroup printer, its 3.1-ppm text speed is very slow.

Like most color lasers using the Canon engine, the Digital's text looks just slightly fuzzy compared to a monochrome laser's—but color quality is among the best we've seen. The Digital's shiny toner helps colors stand out, but the glare can hamper text legibility.

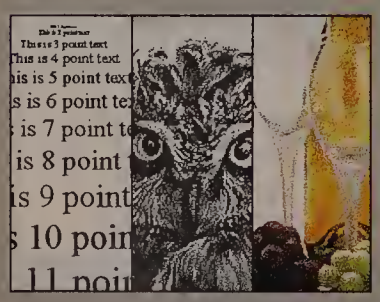
Digital fixed one design flaw common to color lasers using the Canon engine: Any action that interrupts a print job, such as opening the front panel, no longer forces the printer into a loud and time-consuming restart. But the Colorwriter LSR 2000+ is still very noisy when it prints. At 110 pounds it's also a bear to move—and when you do, fuser oil can leak onto paper and make a mess. And the design of the printer's control panel is less than perfect: The menus are logical, but the buttons are labeled with inscrutable icons that make using the menus needlessly confusing. —*Dan Littman* ■



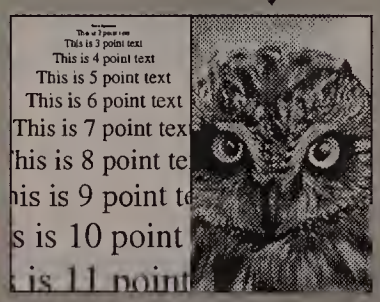
FASTER GRAPHICS SPEED (thanks to more standard RAM) helped push the IBM Network Printer 12 above both Lexmark Optras to the number one spot this month.

PRINT QUALITY SAMPLES

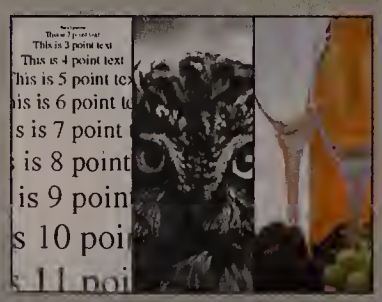
IBM's Text and Gray Scale Excel



HP DESKJET 1600CM
Our Best Buy color workgroup printer for nine months running, this $1999 color ink jet prints good text and gray scale, as well as impressive color images.

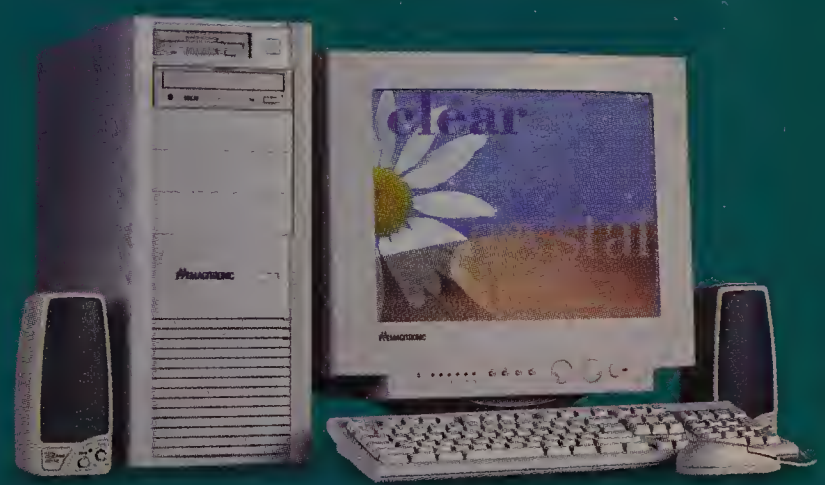


IBM NETWORK PRINTER 12
IBM's inexpensive monochrome laser prints very good text and gray-scale images. With its RAM upgrade, graphics come out faster, too.



DIGITAL COLORWRITER LSR 2000+
The Digital's Canon laser engine prints some of the best color we've seen, but its shiny toner can impair text legibility.

If You'd Rather Pay More and Get Less, May We Suggest a Career in Washington?



Magitronic®. A Computer For the Rest of Us.

Anyone who works hard for their money knows the importance of value. They know how to get the features they want in a computer system at a price they can afford.

Features like an Intel Pentium® 120 to 200MHz processor, a 2.1GB hard drive, 16MB EDO RAM, an 8X CD-ROM, speakers, headphones, microphone, mouse and keyboard.

Not to mention a list of software too long to list here and a two year warranty.

If you are looking for the best in features at prices designed to balance your budget, call 770-849-0667 to get the whole story.

MAGITRONIC®

THE POWER OF VALUE

Circle 140 on reader service card

Two Names. One Ideal.

Michael Johnson.
Multiple Gold Medal Winner and
World Record Breaker.

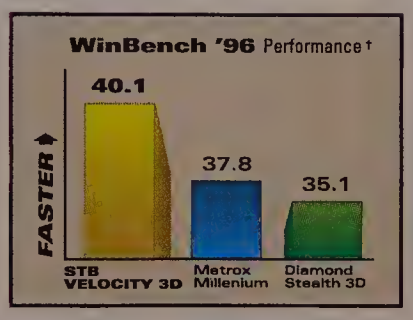
VELOCITY 3D™ bySTB.
World's Fastest
3D Video
Accelerator.

DIGITAL VIDEO

VELOCITY 3D
MULTIMEDIA ACCELERATOR

When it comes to video, only the best will do. The new VELOCITY 3D™ multimedia accelerator from STB has it all – from surfing the net and playing 3D games, to watching MPEG and other full-motion video formats at warp speed. ■ 4MB EDO VRAM and a 220MHz RAMDAC deliver world record performance (up to 8MB with add-on card). ■ With Plug-n-Play, Win95 and NT compatibility, bundled software, a lifetime warranty, and toll-free support you'll agree that the VELOCITY 3D is...

Simply the Best



S3d Enabled
S3 Incorporated

Available at: COMPUSA · BEST BUY · COMPUTER City · Incredible Universe · ComputAbility Consumer Electronics · Fry's Electronics · MICRO CENTER · ELEK-TEK, Inc.

STB Systems, Inc.
1-888-234-8750
www.stb.com

Copyright 1996 STB Systems, Inc. All rights reserved. All trade names referenced are the trademarks, service marks, or registered trademarks of their respective holders. For a copy of the terms of the limited lifetime warranty contact STB Systems at (214) 234-8750. †WinBench 96 1.0 conducted on a Gateway 2000 (model P5-166, w/Windows95) 166MHz Pentium, PCI 2.0 Bus, 512KB Pipeline cache, 16MB EDO DRAM, Caviar IDE HD. 1024x768 with 256 colors at 75Hz refresh. STB VELOCITY 3D™, Matrox Millennium, and Diamond Stealth 3D 2000 were tested using driver versions 1.23, 4.03.00.3110 and 4.02.12 respectively. Prices and specifications subject to change without notice.

Circle 210 on reader service card

PC WORLD

TOP 10 MONITORS

	17-INCH MONITORS	Month tested	Street price (12/1/96)	Overall rating	Quality of text/graphics	Comments	Reader service number
1	Iiyama Vision Master Pro 17 800/394-4335 http://www.iiyama.com	Jan 97	$799	90	very good/ excellent	**FEATURES:** 15.9-inch viewable screen, .25mm Diamondtron tube, up to 85-Hz refresh rate [1], Level 2b Plug and Play ready [2], three-year warranty, 12-hour weekday toll-free support. **PRO/CON:** $30 price cut, best graphics, superb text clarity, easy-to-adjust on-screen menus; two faint lines visible across screen.	620
2	Panasonic PanaSync S17 201/348-7000 http://www.panasonic.com	Sept 96	$699	84	very good/ very good	**FEATURES:** 15.7-inch viewable screen, .27mm dot-pitch tube, up to 85-Hz refresh rate [1], Level 2b PnP ready [2], three-year warranty, 24-hour daily toll-free support. **PRO/CON:** Low price, very crisp text and graphics; on-screen menu icons are difficult to decipher, must press control buttons too much to find on-screen menu items.	621
3	Mitsubishi Diamond Pro 87TXM 800/843-2515 http://www.mitsubishi-display.com	NEW	$749	84	very good/ good	**FEATURES:** 15.7-inch viewable screen, .25mm Diamondtron tube, up to 107-Hz refresh rate [1], Level 2b PnP ready [2], three-year warranty, 12-hour daily toll-free technical support. **PRO/CON:** Very crisp text detail, accurate colors, intuitive on-screen menus, low-emission approval by TCO; two faint lines visible across screen.	622
4	Princeton Graphic Systems Ultra 17+ 800/747-6249 http://www.prgr.com	Jan 97	$599	83	good/ very good	**FEATURES:** 15.8-inch viewable screen, .28mm dot-pitch tube, up to 85-Hz refresh rate [1], Level 2b PnP ready [2], three-year warranty, 24-hour daily toll-free technical support (automated after 5 p.m.). **PRO/CON:** $36 price drop, lowest price on chart, very detailed graphics; some on-screen menu icons hard to decipher.	623
5	ViewSonic PT770 800/888-8583 http://www.viewsonic.com	Sept 96	$749	83	very good/ good	**FEATURES:** 15.9-inch viewable screen size, .25mm Diamondtron tube, can refresh up to 101 Hz [1], Level 2b PnP ready [2], three-year warranty, 11-hour workday only support. **PRO/CON:** $100 price drop boosts unit up two slots, very sharp text, large screen size, color correction software; two faint lines visible across screen.	624
6	Continental DigiView 1709D 888/327-8899 http://www.digiview.com	Sept 96	$799	83	very good/ good	**FEATURES:** 15.9-inch viewable screen, .25mm Diamondtron tube, up to 101-Hz refresh [1], Level 2b PnP ready [2], three-year warranty, 8-hour toll-free weekday support. **PRO/CON:** Good price, very crisp text and pictures, main control button looks odd but adjusting screen is easy; rear on/off switch is hard to reach.	625
7	ViewSonic 17GS 800/888-8583 http://www.viewsonic.com	NEW	$649	83	very good/ very good	**FEATURES:** 15.9-inch viewable screen, .27mm dot-pitch tube, up to 85-Hz refresh [1], Level 2b PnP ready [2], three-year warranty, 11-hour toll-free weekday support. **PRO/CON:** Low price, text and images are fairly crisp, uniform screen brightness, accurate color quality; awkward to navigate through on-screen menus.	626
8	Princeton Graphic Systems E075 800/747-6249 http://www.prgr.com	NEW	$699	82	good/ very good	**FEATURES:** 15.8-inch viewable screen, .26mm dot-pitch tube, up to 120-Hz refresh rate [1], Level 2b PnP ready [2], three-year warranty, 24-hour daily toll-free technical support (automated after 5 p.m.). **PRO/CON:** Very detailed graphics, high refresh rates; sharp but slightly ghosted type, must hunt down on-screen menu items.	627
9	Wyse Technologies Wysevision WY-17PS 800/438-9973 http://www.wyse.com	Sept 96	$799	82	good/ very good	**FEATURES:** 15.9-inch viewable screen, .25mm Diamondtron tube, up to 101-Hz refresh rate [1], Level 2b PnP ready [2], three-year warranty, toll-free support 9 hours on weekdays. **PRO/CON:** Detailed text and images, same controls as Continental; rear on/off switch, two faint lines visible across screen.	628
10	NEC MultiSync P750 800/632-4636 http://www.nec.com	NEW	$1049	82	very good/ good	**FEATURES:** 15.6-inch viewable screen size, .25mm CromaClear tube, up to 117-Hz refresh rate [1], Level 2b PnP ready [2], three-year warranty, daily 12.5-hour toll-free support. **PRO/CON:** Very sharp text, realistic color graphics quality, easy-to-use on-screen menus; smallish viewable screen size, most expensive monitor on chart.	629

Best Buy http://www.pcworld.com/t10monitors All products: 903

[1] Highest refresh rate at 1024 by 768 resolution. [2] Level 2b Plug and Play monitors and graphics cards can automatically synchronize settings. However, Windows 95 does not fully utilize Plug and Play.

HOW WE TEST Ten judges rate a monitor's text and graphics quality. We evaluate each unit on how well it displays typical business letters, spreadsheets, Web pages, and scanned images. The overall rating is based on text and graphics quality (25 percent each), features and ease of use (25 percent), price (20 percent), and service and support (5 percent). The best possible overall rating is 100. Data based on tests designed and conducted by the PC World Test Center. All rights reserved.

IMPROVED TUBE DESIGNS helped two new monitors onto this month's Top 10 chart. Mitsubishi's $749 Diamond Pro 87TXM debuts in third place with an enhanced Diamondtron tube that displays sharper text than previous Mitsubishi monitors. At the bottom of the chart is NEC's MultiSync P750. The $1049 price is steep, but NEC tweaked its CromaClear tube so fonts look crisper, and contrast is better under bright lights. ■

ANOTHER MINDSPRING USER

MindSpring users look like everyone else... until they spring onto the Internet! MindSpring provides fast, reliable, easy-to-use performance for Mac or Windows that gets you directly to the Internet. No traffic tie-ups. No detours. You'll click right along with noggin'-springin' extras like e-mail, newsgroups, chat sessions and the best web browser available.

We offer you friendly, 24-hour technical support by phone or e-mail. Flexible pricing plans starting as low as $6.95 a month. Unlimited access for $19.95 a month. And each plan comes with a 30-day money back guarantee. So if you want a fast, reliable connection, call toll-free **888-677-7464**, or check out our web page at **www.mindspring.com**. It's a heads-up move.

MindSpring™

Direct To The Internet.

© 1997 MindSpring Enterprises, Inc.

PC WORLD

TOP 10 GRAPHICS BOARDS

	GRAPHICS BOARD	Month tested	Street price (12/16/96)	Overall rating	PC WorldBench graphics score	Comments	Reader service number
1	STB Velocity 3D 888/234-8750 http://www.stb.com	Feb 97	$199	101	187 very good	**FEATURES:** 4MB of VRAM, 120-Hz refresh rate at 1024 by 768, 3-D acceleration, bilinear interpolation, Mediamatics MPEG software, S3 Virge/VX chip. **PRO/CON:** Great performance, 4MB of fast memory good for very graphical programs, nice set of utilities; mediocre AVI and MPEG video playback.	713
2	Matrox Mystique 800/361-1408 http://www.matrox.com/mga	Dec 96	$149	100	181 very good	**FEATURES:** 2MB of SGRAM, 130-Hz refresh rate at 1024 by 768, 3-D acceleration, optional MPEG and TV tuner cards, Compcore MPEG software, MGA-1064SG chip. **PRO/CON:** $30 price drop, best 3-D performance and quality, good AVI and MPEG video playback; refresh rates hard to set.	714
3	Diamond Stealth 3D 3400XL 800/468-5846 http://www.diamondmm.com	NEW	$254	99	184 very good	**FEATURES:** 4MB of VRAM, 120-Hz refresh rate at 1024 by 768, 3-D acceleration, bilinear video interpolation, Mediamatics MPEG software, S3 Virge/VX chip. **PRO/CON:** 4MB of fast memory good for graphical apps, great software utilities, excellent AVI video playback, easy installation; pricey.	715
4	Hercules Terminator 3D 800/532-0600 http://www.hercules.com	Dec 96	$119	99	184 very good	**FEATURES:** 2MB of EDO DRAM, 90-Hz refresh rate at 1024 by 768, 3-D acceleration, optional MPEG card, Xing MPEG software, S3 Virge chip. **PRO/CON:** $20 price drop, inexpensive, handles basic 3-D graphics well, excellent AVI and MPEG video playback, easy installation, toll-free support; poor documentation.	716
5	ATI 3D Xpression+ PC2TV 905/882-2600 http://www.atitech.ca	Jan 97	$189	99	180 very good	**FEATURES:** 4MB of SDRAM, 150-Hz refresh rate at 1024 by 768, 3-D acceleration, bilinear video interpolation, ATI MPEG player, ATI Rage II chip. **PRO/CON:** $10 price drop, 4MB of memory lets you see more colors at high resolutions, connects to a TV, excellent AVI and MPEG video, flawless installation; 3-D quality is merely okay.	717
6	STB Lightspeed 128 888/234-8750 http://www.stb.com	Aug 96	$150	98	186 very good	**FEATURES:** 2.25MB of MDRAM, 120-Hz refresh rate at 1024 by 768, bilinear video interpolation; Xing MPEG software, Tseng Labs ET6000 chip. **PRO/CON:** Good price, performs well in business and graphics programs, perfect AVI video playback, excellent MPEG, lifetime warranty; no 3-D acceleration.	718
7	Hercules Dynamite 128/Video 800/532-0600 http://www.hercules.com	NEW	$139	97	186 very good	**FEATURES:** 4MB of MDRAM, 90-Hz refresh rate at 1024 by 768, bilinear video interpolation, Xing MPEG software, Tseng Labs ET6000 chip. **PRO/CON:** Great price for a 4MB card, good performance all the way up to 1280 by 1024, cool utilities, easy installation; poor documentation, no 3-D acceleration.	719
8	VideoLogic GrafixStar 600 800/578-5644 http://www.videologic.com	Oct 96	$149	97	185 very good	**FEATURES:** 2MB of MDRAM, 120-Hz refresh rate at 1024 by 768, bundled multimedia apps, Xing MPEG software, Tseng Labs ET6000 chip. **PRO/CON:** $10 price drop, fast in business and graphics programs, inexpensive, excellent utilities, top-notch AVI and MPEG video; no 3-D acceleration.	720
9	Matrox Millennium 800/361-1408 http://www.matrox.com/mga	June 96	$199	96	184 very good	**FEATURES:** 2MB of WRAM, 120-Hz refresh rate at 1024 by 768, optional MPEG and TV tuner cards, Compcore MPEG software, Matrox MGA-2064W chip. **PRO/CON:** Good for graphical programs, some 3-D acceleration, superb AVI video; watch for slower refresh rates in version shipped with some PCs.	721
10	Diamond Stealth 3D 2400XL 800/468-5846 http://www.diamondmm.com	Feb 97	$179	95	184 very good	**FEATURES:** 4MB of EDO DRAM, 100-Hz refresh rate at 1024 by 768, 3-D acceleration, Mediamatics MPEG software, S3 Virge chip. **PRO/CON:** All that RAM displays more colors and helps with 3-D effects; for $20 less, the 2MB board is also a good buy; original drivers lacked refresh rate utility—we'll test new drivers next month.	722

Best Buy http://www.pcworld.com/t10graphics Windows 95-certified Plug and Play All products: 910

HOW WE TEST We tested PCI boards under Windows 95 with PC WorldBench 1.0 at 800 by 600 resolution and 16.8 million colors (reported here) and at 1024 by 768 and 65,536 colors. Boards were tested in a Dell Dimension XPS P133c with 16MB of EDO DRAM and 256K of pipeline-burst secondary cache. The overall rating is based on performance (40 percent), features (30 percent), price (20 percent), and support policies (10 percent). For all ratings, higher is better. Data based on tests designed and conducted by the PC World Test Center. All rights reserved.

DIAMOND IS IN THE HUNT for a Best Buy. Its new Stealth 3D 3400XL is a good board, especially if you work with lots of colors at high resolutions. It plays video clips more smoothly than the tenth-ranked Stealth 3D 2400XL. But at $254, it's the highest-priced board on the chart. Farther down the chart, the 4MB Hercules Dynamite 128/Video is a steal at $139. It's powerful in business and graphics programs, but its documentation is poor. ■

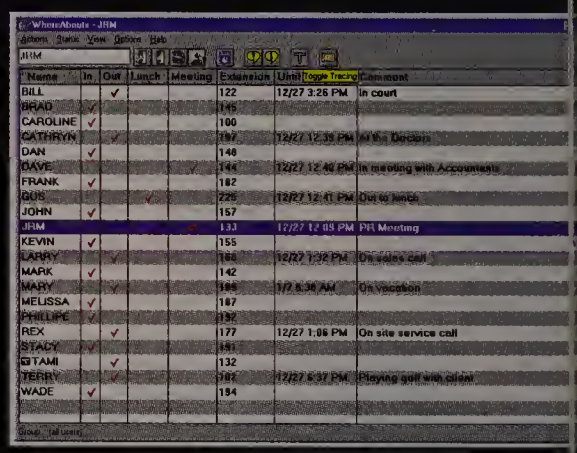
Your Biggest Sale Is On Hold... Does Your Office Know Your

WhereAbouts?

THE ON-LINE IN/OUT BOARD FOR YOUR LAN

HOLD

Now you can find a co-worker instantly so your clients can place their orders instead of being left on hold, or worse, sent to voice-mail jail! Today's modern office tool, *WhereAbouts?*, is an Online In/Out board for your whole company, which allows you to quickly and easily keep track of your staff throughout the day with one quick glance. Amazingly, *WhereAbouts?* automatically marks you in or out so your people can improve customer satisfaction immediately without changing the way they work today. *WhereAbouts?* sets up in seconds and pays off in minutes.



"***WhereAbouts?*** is one of those programs that, once you see it, makes you wonder why no one has done this before." *InfoWorld - April 1995*

"***WhereAbouts?*** is a straight-forward and user-friendly product." *PC Magazine - September 1995*

"PC Week Labs found that ***WhereAbouts?*** unobtrusively solves several business problems." *PC Week - July 1995*

"For security and detailed reporting, ***WhereAbouts?*** is the right choice." *Government Computer News - May 1996*

Here are a few companies using *WhereAbouts?* today:

- Arthur Andersen
- Ocean Spray
- Honeywell
- Naval Surface Warfare Center
- AT&T
- MCI
- US Department of Commerce
- Orange County Department of Welfare
- Unisys
- US Senate
- World Bank of Canada
- Mississippi Attorney General's Office

FUTURUS

Office Productivity Pioneers Since 1987

1-800-95-WHERE

Download the real thing FREE - www.futurus.com

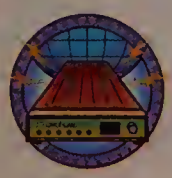
PC WORLD

TOP 10 MODEMS

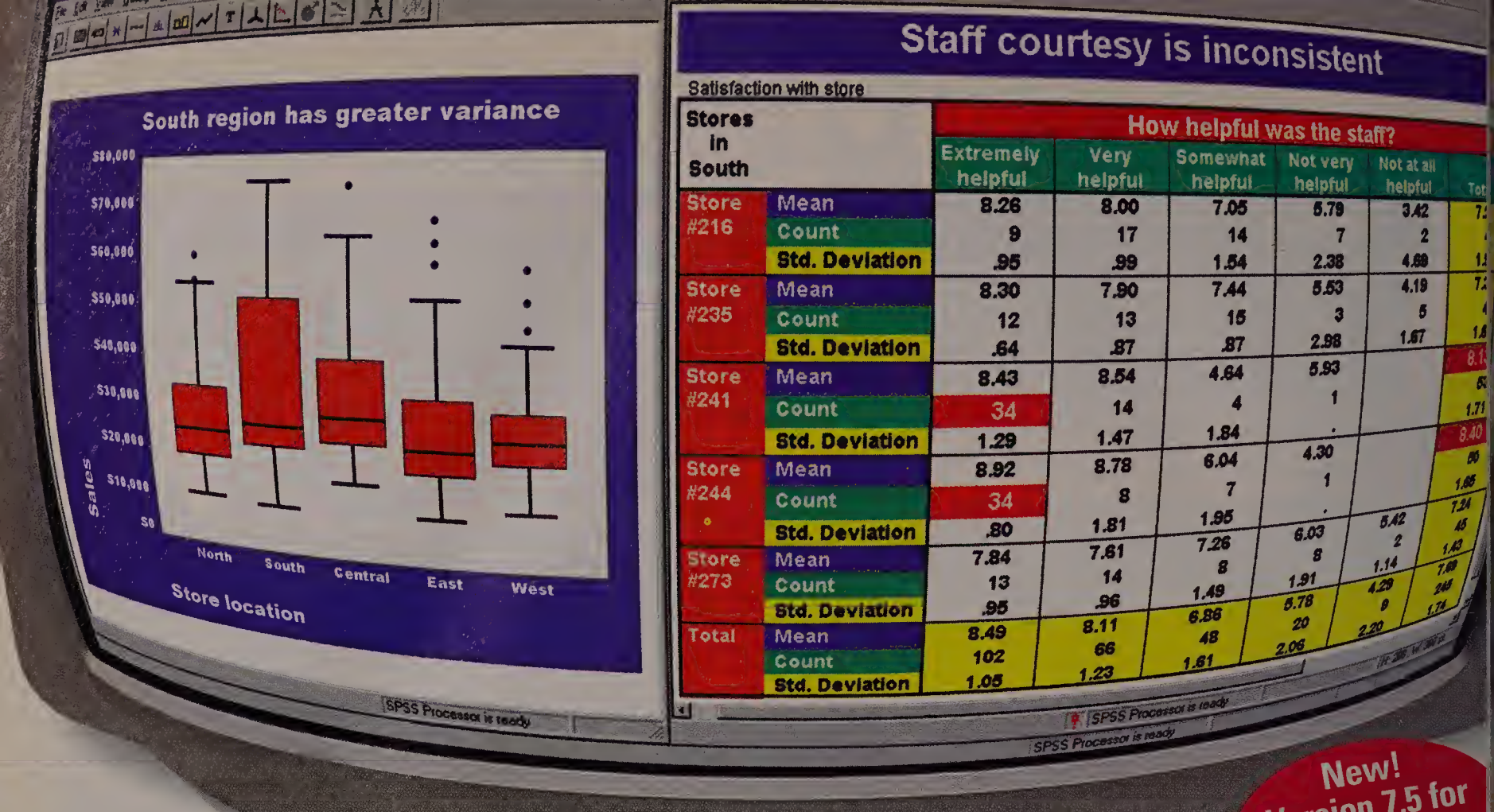
	EXTERNAL MODEMS	Month tested	Street price (12/15/96)	Overall rating	Average transfer time per MB (min:sec)	Comments	Reader service number
1	Practical Peripherals PC288LCD V.34 770/840-9966 http://www.practinet.com	NEW	$329	85	2:28	**FEATURES:** 28.8-kbps, distinctive ring, stores multiple profiles, 230.4-kbps modem-to-PC speed, Quicklink II fax/data software, Caller ID, lifetime warranty. **PRO/CON:** Best performer on the chart, LCD English-language status display, loaded with features like manual volume control; very expensive.	703
2	U.S. Robotics Courier V.Everything/ V.34 800/877-2677 http://www.usr.com	Jan 97	$275	82	2:42	**FEATURES:** 33.6-kbps, FlashROM, distinctive ring, Quicklink II fax/data software, password protection, callback security. **PRO/CON:** Above-average performer, loaded with features, manual volume control, phone jack turns off during connect, great documentation; expensive, takes up a lot of room on your desk.	704
3	Zoom V.34X Plus 800/631-3116 http://www.zoomtel.com	NEW	$119	80	2:52	**FEATURES:** 33.6-kbps, MNP-10EC error control, stores multiple profiles, distinctive ring, DOS/WinFax Lite fax/data software. **PRO/CON:** Fantastic price, easy-to-follow documentation, seven-year warranty; below-average performance, no security features.	705
4	Motorola ISG Premier 33.6 800/566-3266 http://www.mot.com/mims/isg/	Jan 97	$230	80	2:28	**FEATURES:** 33.6-kbps, FlashROM, 230.4-kbps modem-to-PC speed, distinctive ring, stores 20 profiles, Quicklink II fax/data software. **PRO/CON:** Ties with the Practical Peripherals unit for best performance on the chart, toll-free tech support, $70 price drop since the last review; documentation is not for novices.	706
5	NewCom 33600efx 800/563-9266 http://www.newcominc.com	NEW	$120	79	2:48	**FEATURES:** 33.6-kbps, MNP-10 error control, Quicklink II fax/data software. **PRO/CON:** A good modem if cost is your overriding concern, includes serial cable, toll-free tech support; below-average performance, few features, no security or upgrade options, poor documentation.	707
	PC CARD MODEMS						
1	Motorola Montana 33.6 800/427-2624 http://www.mot.com/modems	NEW	$240	89	2:36	**FEATURES:** 33.6-kbps, FlashROM, 230.4-kbps modem-to-PC speed, digital line voltage protection with alert, Quicklink Mobile fax/data software. **PRO/CON:** Top performer on the PC Card chart, performed especially well over noisy line conditions, good for cellular use; installation required a call to tech support.	708
2	Megahertz XJ4336 800/527-8677 http://www.usr.com/mobileusr	NEW	$289	86	2:38	**FEATURES:** 33.6-kbps, FlashROM, 230.4-kbps modem-to-PC speed, MNP-10EC error control, stores multiple profiles, digital line voltage protection with alert. **PRO/CON:** Great performer, thorough documentation for beginners and experts alike, painless installation; expensive.	709
3	Practical Peripherals ProClass 288 V.34 Data/Fax Modem With EZ-Port 770/840-9966 http://www.practinet.com	Jan 97	$199	86	2:42	**FEATURES:** 33.6-kbps, FlashROM, 230.4-kbps modem-to-PC speed, distinctive ring, stores multiple profiles, password protection, Quicklink II fax/data software. **PRO/CON:** Above-average performer, built-in phone jack, lifetime warranty, $30 price drop since the last review; installation is not as easy as we'd like.	710
4	TDK CyberExpress 3000 800/999-4835 http://www.tdksystems.com	Jan 97	$199	84	2:49	**FEATURES:** 33.6-kbps, MNP-10EC error control, distinctive ring, stores multiple profiles, 250-kbps modem-to-PC speed, Quicklink II fax/data software. **PRO/CON:** Nice price, toll-free tech support, digital line voltage protection with alert; slowest performer on the chart and below average overall.	711
5	Zoom PCMCIA V.34C Plus Model 2870 800/631-3116 http://www.zoomtel.com	Jan 97	$199	84	2:47	**FEATURES:** 33.6-kbps, MNP-10EC error control, FlashROM, distinctive ring, stores multiple profiles, DOS/WinFax Lite fax/data software. **PRO/CON:** Attractively priced, digital line voltage protection, seven-year warranty; no security features, middling performer, installation not recommended for novices.	712

Best Buy http://www.pcworld.com/t10modems Windows 95-certified Plug and Play All products: 909

HOW WE TEST We tested a pair of identical modems on a simulated phone network. For the phone line test, we sent a text file over 55 line conditions. For the file type test, we sent five files—graphics, text, program, and compressed file types, plus a mixture of these four types—over one line condition. We then averaged the results of the two tests. Overall rating is based on performance (43 percent), features (26 percent), price (12 percent), support (10 percent), and ease of use (9 percent). Data based on tests designed and conducted by the PC World Test Center. All rights reserved.



FIVE NEW MODEMS appear on this month's chart, two of them new Best Buys. On the external chart, Practical Peripherals' PC288LCD V.34 packages real speed with features like an LCD status display. The Motorola Montana 33.6 is our new top PC Card, followed by Megahertz's XJ4336, which replaces the XJ4288. The Montana is the best performer of the PC Cards, but installation isn't as easy as we'd like from a Plug and Play modem. ■

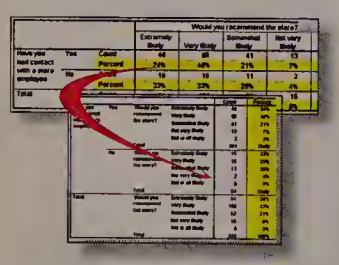


New! Version 7.5 for Windows® 95 and NT™

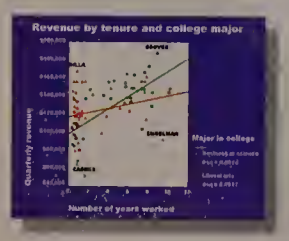
Unleash the power in your data

SPSS mines your data in ways no spreadsheet or reporting tool can

Go beyond spreadsheets with analytical techniques such as crosstabs, regression, factor and over 100 others.



Use SPSS' multidimensional pivot tables to discover critical information that might be buried in traditional reports.



Get the best picture of your data with over 60 high-resolution business, professional and quality charts.

The critical information you need, like the variance and distribution of your data, isn't in simple summary reports. To compete and win, you need to take the next step – advanced analysis that leads to better decisions. Use powerful statistical methods and revealing charts to spot patterns and trends. Discover what's significant. Make better forecasts. You don't have to be a statistician to use SPSS. SPSS assists you with a tutorial, step-by-step instructions and "What's this?" help. We help you find a solution with a range of training and analytical consulting services. See our Web site for a white paper on how statistics help you achieve a competitive advantage.

SPSS
Real Stats. Real Easy.™

For more information

Call 1 (800) 543-5837

A5837

or fax 1 (800) 841-0064
Visit our site on the World Wide Web: http://www.spss.com
or e-mail: sales@spss.com

We speak your language with 26 offices and 60 distributors worldwide.

Circle 253 on reader service card

SPSS is used today to:

- Analyze your database
- Accurately forecast sales
- Increase customer satisfacti
- Find the most profitable segments
- Improve mailing responses

"Users will want this progra for when their spreadsheet out of steam." – PC Magazine

"...fast, powerful, robust, and joy to use." – Windows Sourc

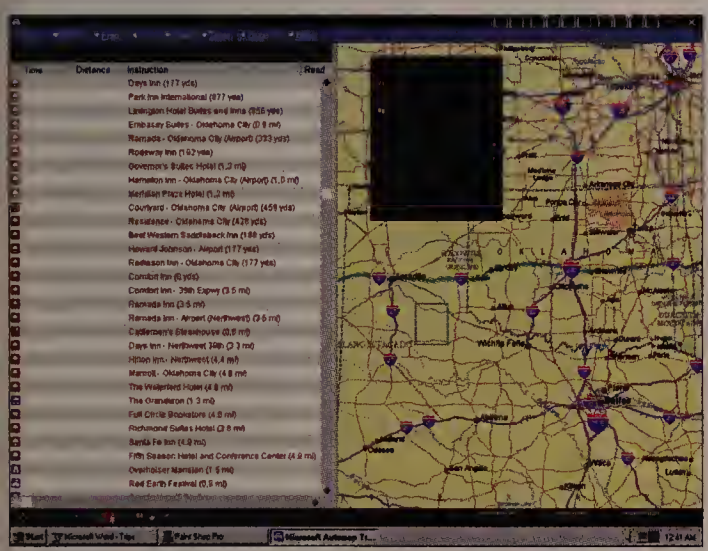
"...easy enough for statistics newcomers, but includes features that power users require." – PC World

"...an essential tool" – PC We

Travel To Go, Control the TV, Web Cartoons

ON THE ROAD AGAIN

IF YOU LIKE to know where you're going before you hit the road, get help from Rand McNally's **TripMaker 1997 Edition** or Microsoft's **Automap Trip Planner**. Both CD-ROMs cover thousands of miles of North American roads, provide directions, and suggest what to do along the way.



AUTOMAP TRIP PLANNER HELPS YOU map out your vacation in advance, giving you more time to enjoy the ride.

Microsoft's package is the slicker of the two, with sophisticated maps, gorgeous panoramic views of select sites, and a smooth interface. But Rand McNally's program comes with a printed color road atlas—handy if you don't plan to travel with your computer. Both titles offer wizards that prompt you for travel habits such as how fast you drive and what time of day you like to travel, then automatically calculate itineraries with complete directions, maps, activities, and travel times—all printable. They also have videos, pictures, maps, and articles pertaining to specific locales and attractions. Web links in both products keep the information fresh.

—James Oliver Cury

TripMaker 1997 Edition

GRADE: **A-**; PRICE: $40 street; Rand McNally New Media; 800/671-5006, http://www.randmcnally.com/catalog/tripmkr.htm

READER SERVICE NO. 762

Automap Trip Planner

GRADE: **B+**; PRICE: $40 street; Microsoft; 800/426-9400, http://www.microsoft.com/automap/

READER SERVICE NO. 763

A HOME OF THEIR OWN

Kids' World Online is like a cartoon network on the Internet. Download the software, and it creates a child's place on your computer. It's an Internet browser as well as a kid-safe desktop interface. It won't let the kids play with your financial records or stray into unsavory Net neighborhoods. It's fun, it's educational, and it's *free*. (At least for now; it may become a subscription service later this year.) Kids can carry out basic experiments with Virgil Reality the mad scientist and delve into word matching and math games with Lil' Howie. Or they can can send and receive e-mail and chat with other kids. The chat function uses avatars that speak the words kids type, in goofy cartoon voices.

—Aoife McEvoy

Kids' World Online

GRADE: **A-**; PRICE: free; 7th Level; 800/884-8863, http://www.7thlevel.com

READER SERVICE NO. 764

THE VIRTUAL CONTRACTOR

ANYONE WHO'S HAD a house built or remodeled knows that it helps to have a degree in architecture and the patience of a saint. **Planix Home Design Suite 3D** aims to streamline the experience by letting you test-drive your design before you hire a contractor. Once you study the Planix manual, you can plan interior and exterior walls, add furniture and cabinets, even decorate with artwork, rugs, windows ▶

Automated Channel Surfing

YOU MAY BE A HIGH-TECH NERD, but my money says you can't program your VCR. Am I right? Well, **Program Master** is all you need to rule that VCR with an iron fist. Program Master's ETV Host software downloads a programming guide (available by subscription) for your area. Search for stuff you like by title, genre, actor, or other more specific criteria; ETV Host then produces a personal viewing schedule. Hold Program Master up to your PC screen. The software transmits the information to the remote control via a series of flashing lights. Leave the remote pointed at the TV and VCR and go about your life. When you get home, you can park yourself in front of the television set and watch the tape your electronic servants made while you were out.

—Christina Wood

Program Master

GRADE: **A**; PRICE: with six-month programming guide subscription $49.95 list; subsequent one-year subscription $49.95; Scottsdale Technologies; 602/998-7300

READER SERVICE NO. 765

EDITED BY Christina Wood

by Pella, and wall coverings by Wallpapers to Go. After you build your dream house on-screen, take a 3-D walk-through or an animated tour. It takes a lot of time to learn how to put that virtual wall where you want it and not end up wallpaper the ceiling, but this package is an excellent tool to get you started on that remodel.

—*Angela Freeman*

Planix Home Design Suite 3D

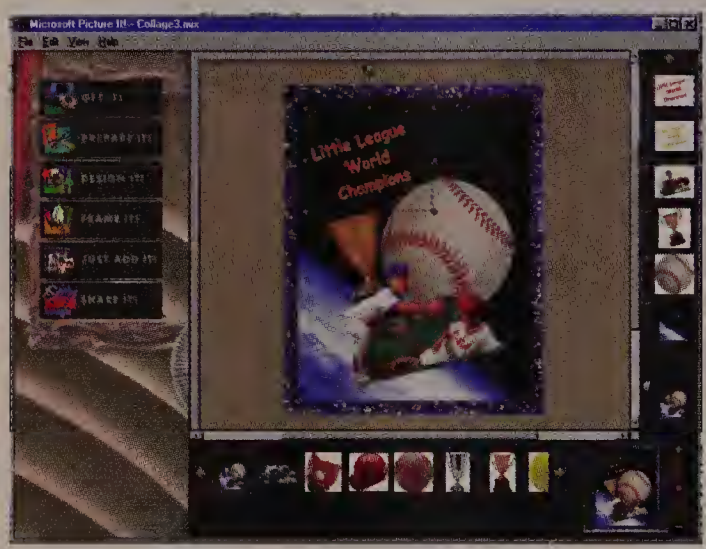
GRADE: **B**; PRICE: $59 street; Softdesk; 800/231-8574, http://www.softdesk.com/

READER SERVICE NO. 766

PICTURE THIS

YOU'VE SCANNED IN the family photos; now you're ready to edit your sister's boyfriend out of all of them. But who has time to learn a complicated photo editing package? Check out Microsoft's **Picture It**. Just open photos from a scanner, digital camera, or Kodak FlashPix CD, click a *Task* button, and follow wizards to fix red-eye syndrome, add special effects or colorful borders, create a photo collage—you name it. Picture It comes with ready-made templates, backgrounds, and clip art. Graphics veterans won't be interested, but Picture It is just right for the rest of us—and our kids.

—*Richard Jantz*



PICTURE IT'S STEP-BY-STEP PHOTO EDITING makes it easy to produce photo collages and other creative projects.

Picture It

GRADE: **A**; PRICE: $79.95 list; Microsoft; 206/882-8080, http://www.microsoft.com/pictureit

READER SERVICE NO. 767

ENCYCLOPEDIAS DUKE IT OUT

THE NEW BREED of CD-ROM encyclopedia must be both bulldozer and entertainer, opening up new worlds of information and presenting knockout combinations of text, pictures, and sound. **Compton's Interactive Encyclopedia 1997 Edition** and **World Book 1997 Multimedia Encyclopedia Deluxe Edition** rise to the challenge. Neither achieves the elegance of the Microsoft Encarta 97 Deluxe Edition (see "Best CD-ROMs of 1996," December 1996), but both are logical additions to your library. Each offers access to the Web and monthly content updates.

Tidy on-screen presentation with a simple icon-and-tab format and a lack of gimmicks make World Book the no-nonsense choice. It includes a disc of videos, animations, and 3-D panoramas. Less eyestraining than the previous version, Compton's still challenges the attention with its amusement park graphics and games. But once you get used to this midway of learning, Compton's search mechanisms and integration of Web addresses prove remarkably efficient. A Planetarium, various browsing and exploring environments, and several factoid features may feel like sound-bite learning to adults, but they make Compton's especially appealing to kids.

—*Derk Richardson*

Compton's Interactive Encyclopedia 1997 Edition

GRADE: **B+**; PRICE: $49.95 street; Compton's New Media; SoftKey Int'l; 800/227-5609, http://www.comptons.com/products/cie/cie.html

READER SERVICE NO. 768

World Book 1997 Multimedia Encyclopedia Deluxe Edition

GRADE: **A−**; PRICE: $65 street; IBM; 800/426-7235, http://www.pc.ibm.com/multimedia ■

F Y I

DO YOU TRUST salespeople? Turns out 84 percent of the computer-buying masses let the retail sales staff influence their choice. Only 18 percent went to the store knowing what they wanted.

SOURCE: CHANNEL MARKETING, DALLAS

KEEPING UP

Appreciate Depreciation

THIS TIME OF year the word *taxes* becomes a mantra—especially if you have a small business. Here's a tip from the legal minds at Nolo Press in Berkeley, California (specifically from Frederick Daily, author of *Tax Savvy for Small Business*). If the business software you just bought has a useful life of one year, you can write off its entire cost in the first year instead of the usual 36 months. Even better: You can write off a computer purchase in the first year if the whole thing (including bundled software) cost less than $17,500.

Computer Samaritans

EAGER TO SPREAD computer literacy? **Tech Corps** (508/620-7751, http://www.ustc.org) is a nonprofit organization that matches up computer-savvy people with schools that need their expertise. You can do more than simply surrender your old 386 (though you can do that, too): You can connect classrooms to the Internet, set up donated computers, and help teachers incorporate technology into their curriculum. Maybe your computer skills don't set you apart at work (or home), but they'll be appreciated in a technology-hungry classroom.

The Fashion of Netizens

PROUD OF BEING a Nethead? Now you can emblazon those cute Internet shorthand symbols—like :-) for smile and :-(for sad—across your chest, and you don't have to log off to do it. Surf over to http://www.netrags.com, design the T-shirt you want, pay $15.95, and wait for delivery.

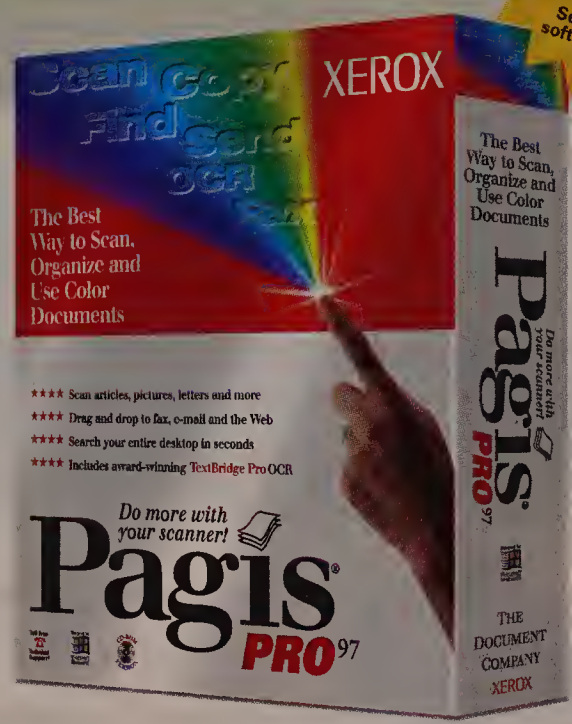
3 a.m. Help

WORD OR EXCEL has just crashed your computer. It's 3 a.m. and you refuse to pay for after-hours support. Check out Microsoft's redesigned online support at http://www.microsoft.com/support/. At the site you'll find electronic support wizards waiting to help you troubleshoot common problems.

—**Christina Wood**

Unlock the power of your scanner!

SPECIAL introductory offer*
$25 MAIL-IN REBATE
See your local software retailer



With one-touch scanning software from Xerox.

Want to do more with your scanner, more easily, more often? Get Pagis Pro.

It's easy. Pagis Pro software unlocks the potential power of your scanner, enabling you to use, share, store and find any scanned document.

It's powerful. Now make a copy of a color photo and e-mail it to a friend. Fax a business card to an associate and store a copy for yourself. Scan a recipe and easily find it again. Even turn your newsletter into a Web page. Pagis Pro provides all the functions you need to scan, store, OCR, copy, annotate, fax, e-mail, and even publish on the Internet. All from your Windows®95 or Windows®NT 4.0 desktop.

It's friendly. With Pagis Pro you manage all your scanned documents right in the Windows®95 Explorer—not some proprietary file system. And we include an incredibly fast search tool to help you find any document—including the ones you scan—on your system.

It's accurate. Scan a newspaper or magazine article with Pagis Pro and in seconds you'll have a formatted electronic copy, complete with color photos, columns and tables—just as if you had typed them yourself. Only faster, because Xerox' award-winning TextBridge Pro technology is built right in.

It's just $174.† And for a limited time Xerox is also offering a $25 introductory rebate. What's more, Pagis Pro is backed by our 30-day risk-free Xerox Satisfaction Guarantee and includes unlimited toll free support.**

Do more with your scanner. Pagis Pro puts the power in your hands. Use it.

1-888-99-PAGIS
www.pagis.com

THE DOCUMENT COMPANY
XEROX

COMPUSA COMPUTER City EGGHEAD BEST BUY

Designed for Microsoft® Windows®95

Includes Microsoft® Internet Explorer

*Offer expires 3/31/97. Not vaild with any other Xerox offer. †Estimated street price. Your actual price may vary. **For registered users only. ©1996 Xerox Corporation. All rights reserved. Xerox®, The Document Company®, the stylized X logo, and Pagis® are registered trademarks of Xerox Corporation. All other trademarks are property of their respective owners.

Circle 257 on reader service card

PC WORLD

TOP 5 HOME PCs

	SYSTEM	Street price (11/25/96)	Overall rating	PC WorldBench score	Reliability/ service rating	Setup rating	Comments	Reader service number
1	Dell Dimension P200v 800/388-8542 http://www.dell.com	$2499	88	213 outstanding	best/ best	fair	**FEATURES:** P-200, 32MB of SDRAM, 2.1GB hard drive, 8X CD-ROM drive, 33.6-kbps fax-modem, 15-inch monitor. **PRO/CON:** Basic bare-bones power machine gives near-record performance at a very reasonable price. Price here includes MS Office Pro but no other software; mail order only. Good foundation for home office.	731
2	Hewlett-Packard Pavilion 7285 800/724-6631 http://www.hp.com/info/pchome	$2848	84	207 outstanding	best/ good	outstanding	**FEATURES:** P-200, 32MB of RAM, 3.1GB hard drive, 8X CD-ROM drive, 28.8-kbps fax-modem, 15-inch monitor. **PRO/CON:** Lots of muscle makes this a good choice for the power or home-office user. Same family-oriented collection of software as the 7280P.	732
3	Micron Home MPC 800/223-6571 http://www.micron.com	$2720	83	215 outstanding	good/ best	good	**FEATURES:** P-200, 32MB of RAM, 1.2GB hard drive, 12X CD-ROM drive, 33.6-kbps fax-modem, 17-inch monitor. **PRO/CON:** The fastest home machine we've tested; software package includes Microsoft Office Pro, Quicken, Encarta, and MechWarrior 2. Expensive, but you get what you pay for. Small hard drive.	733
4	Gateway 2000 P5-166 Family PC 800/846-2000 http://www.gw2K.com	$2199	83	199 very good	fair/ best	good	**FEATURES:** P-166, 16MB of RAM, 2.5GB hard drive, 8X CD-ROM drive, 33.6-kbps modem, 17-inch monitor. **PRO/CON:** Very fast, good price, big hard drive and monitor. Available only through mail order. Gateway 2000's less-than-spectacular reputation for reliability makes this a system for the confident user.	734
5	Hewlett-Packard Pavilion 7280P 800/724-6631 http://www.hp.com/info/pchome	$2848	82	184 good	best/ good	outstanding	**FEATURES:** P-166, 16MB of RAM, 3.1GB hard drive, 8X CD-ROM drive, 33.6-kbps fax-modem, 17-inch monitor, built-in color scanner. **PRO/CON:** Great home machine with snapshot-size color scanner and image editing software. Family-oriented software collection includes Encarta, Quicken, The Great Word Adventure, and SimCity 2000.	735

Best Buy http://www.pcworld.com/top5soho All products: 912

HOW WE TEST The overall rating is based on reliability and service (30 percent), price (20 percent), PC WorldBench performance (20 percent), setup (10 percent), compatibility (10 percent), and extra features (10 percent). Reliability and service ratings are based on results of PC World's Reliability and Service Monitor survey.

DELL HOLDS ON TO THE TOP SPOT with an improved, faster version of its previous winner, the Dimension P200v. Meanwhile, an interesting machine from newcomer Monorail caught our eye but didn't quite make the chart.

The upgraded Dell Dimension P200v, still our Best Buy, now boasts 32MB of SDRAM, a 2.1GB hard drive, and a slightly higher price than last month. This mail-order–only system is now among the fastest home machines we've tested, and at $2499, it's still a bargain.

In the number two position is HP's powerful $2848 Pavilion 7285. A P-200 processor, 32MB of RAM, a generous software collection, and a 3.1GB hard drive make this a good choice if you're working and playing at home.

At $2720, Micron's Home MPC delivers blinding performance, a 17-inch monitor, and a great software bundle for business and pleasure. Directly below it is the P5-166 Family PC from Gateway 2000. Featuring a 2.5GB hard drive and a 17-inch monitor, this P-166 offers great performance for a rock-bottom $2199. Coming in fifth once again is HP's Pavilion 7280P, sporting a P-166 processor, a 3.1GB hard drive, a 17-inch monitor, the same software collection as the Pavilion 7285, and a cool 5-by-7-inch color scanner.

Barely missing the Top 5 is the new Monorail PC 7245, an attractive choice if you can trade speed for convenience and a super-low $999 price. The Monorail looks like one of those flat desktop panels you see on *Star Trek:* Its AMD K5-PR75 processor (equivalent to a P-75), 1GB hard drive, 4X CD-ROM drive, 33.6-kbps modem, speakers, and 10.4-inch flat-panel display come in a phone-book–size metal case that rests upright on a stand.

Its tiny footprint makes the Monorail ideal for people with limited space; it fits on a kitchen counter and can easily be carried from one room to another. Setup is a snap: Just unpack, plug in the keyboard and mouse, and you're in business.

But the Monorail oozed through PC WorldBench tests with a slow score of just 121, and that was with the $69 video upgrade we needed for 800 by 600 resolution at 256 colors (a PC WorldBench requirement). Still, if space is tight, the Monorail is a great choice.

—*Kirk Steers*

MONORAIL'S COMPACT PC 7245 just missed the Top 5.

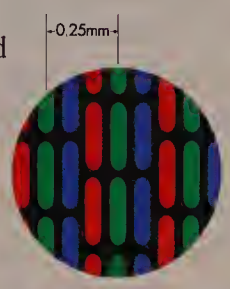
Kirk Steers is a contributing editor for PC World. *Testing performed by Ulrike Diehlmann of the PC World Test Center.* ■

Once in awhile there's an ***advancement in technology*** *that leaves you breathless...*

WOW!

You've heard it all before, from all the other monitor manufacturers. They claim to have the SHARPEST, the most FANTASTIC COLOR, the BEST SATURATION and 3D LIKE DEPTH. ***This time it's true!*** All we can say is when you experience Smile's new leading edge monitor technology, you'll be OVERWHELMED with its outstanding BEAUTY and stunning TECHNICAL ADVANCEMENT. These monitors aren't for everyone, but if you demand the best, in graphics and type clarity, the new Smile monitors with CROMACLEAR™ CRT's from NEC are what you must have. We invite you to go to your nearest reseller and compare this new CROMACLEAR™ technology to everything else and you'll see...there's NO COMPARISON.

For the reseller closest to you please call Smile in California at 1.800.876.4532 or in New Jersey at 1.201.772.3661



ULTRA FINE
0.25MM
SLOT PITCH

SMILE'S CROMACLEAR™ MONITORS COME IN TWO SIZES; 15" CB6536SL AND 17" CB6736SL
1280 X 1024 NI RESOLUTION • MPR-II • VESA-DPMS • 120 Hz MAX. REFRESH

Another Picture Perfect Solution From Smile.

SMILE...
Your Full Line
Monitor Source from 9" to 21"

Smile INTERNATIONAL, INC.™

To receive further information about our total line of monitors, visit our website at www.smilekfc.com • E-mail...smilekfc@aol.com • SMILE USA California and New Jersy • SMILE Worldwide Germany, France, Benelux, UK, Pacific Rim

Smile is the U.S. subsidiary and a registered trademark of Xue Feng Corporation...A worldwide ISO-9002 certified leader in manufacturing of reliable, price-performance monitors.
(All other products named in this ad are trademarks or registered trademarks and are the property of their respective companies. CromaClear is a registered trademark of NEC.)

ISO 9002

CHIP TIP

PC WORLD TOP 10 Monitors

Circle 206 on reader service card

Fast Browsing, Big Problems

I'M FACING A moral dilemma. I've fallen in love with a program that speeds up my Web browsing tremendously. The rub? People who run Web sites hate it, and while it speeds me up, it slows *your* access to a crawl.

I'm talking about Peak Net.Jet. To understand how Net.Jet works, consider what your modem does most of the time you're surfing the Web: nothing. After downloading a page, it just sits there, wasting bandwidth, and waits for you to click a link.

Net.Jet changes all that. As you read a page, Net.Jet downloads that page's links. So when you click a link, your new destination is probably already on your hard drive. When I tried it with a 28.8-kbps modem, the new page popped up so fast, I thought I was using my ISDN connection. When I did try it with real ISDN, it felt like a religious experience.

Net.Jet is smart, too. Working in the background, it notes the Web sites you visit most often, then maintains local, regularly updated copies for instant access. (You can speed up this learning process by giving Net.Jet a tour of your favorite sites.) If you stop visiting a site, Net.Jet will drop it from its list of your favorites.

Net.Jet won't do a thing for big downloads. You'll still have to wait a long time for the 11MB video of an exploding whale (http://forteana.mic.dundee.ac.uk/ft/whale.html) or the 20MB worth of a guy lighting his BBQ grill with liquid oxygen (http://ghg.ecn.purdue.edu). But you'll see Net.Jet shine with text-intensive sites or those with a few modest graphics.

BANDWIDTH THIEF

OKAY, HERE'S THE moral dilemma. The Web works (or at least, it works as well as it does) *because* connections are idle most of the time. Many people can visit a site simultaneously because each visitor accesses the server only occasionally. But Net.Jet gobbles bandwidth faster than my brother-in-law takes in starches at an all-you-can-eat buffet, downloading page after page on the off-chance you'll want to read them. It can temporarily cripple small servers and slow down large ones.

> Net.Jet gobbles **bandwidth** faster than my brother-in-law takes in **starches** at an all-you-can-eat **buffet.**

Some sites have already made Net.Jet use verboten. For example, my favorite source of movie reviews—The Internet Movie Database (http://us.imdb.com/welcome.html)—senses Net.Jet's presence and blocks me from the site, with an error message explaining that Net.Jet is the reason. (I can get on just fine by turning Net.Jet off.) More Web sites will inevitably do the same, especially if Net.Jet and similar products become popular.

Use your imagination and think what would happen if *lots* of people used Net.Jet. Right. Net.Jet could bring the Internet to its knees. My guess? Smaller Web sites are going to get hosed, and bigger ones will limit Net.Jet's access time.

SLOW LOAD

PERHAPS AS A form of karma, Net.Jet also has irritating flaws (though its advantages far outweigh its foibles). For one thing, Net.Jet seems to take forever to load. It first brings up its own dialer to get you online. Then it loads itself, modifies your browser's cache and proxy settings (no damage done—they're restored as soon as you exit Net.Jet), loads its own cache into memory, and finally launches your browser. On my P-166 system, this process takes nearly a minute. My recommendation: When you load your browser for e-mail purposes, do it from the browser's own icon rather than through Net.Jet.

I looked at Net.Jet 1.1. By the time you read this, a new version should be out with a sorely needed feature: a pause button. That's important because when you download a large file—say, that exploding whale—you don't want your modem distracted by a lot of pages you'll probably never read. Speaking of upgrades, every so often the program will, with your permission, check to see if there's a new version of Net.Jet available, then handle the upgrade automatically at no charge.

The bottom line? I'm going to continue using Net.Jet. It's just too powerful to abandon. But I'll be a good Netizen, use the program judiciously, and when I get a pause button, I'll press it often and early. I hope you do the same.

Peak Net.Jet

$29.95 list; Peak Technologies; 800/453-5322, 360/733-6010, 360/733-7818 (fax); info@peak-media.com; http://www.peak-media.com/

READER SERVICE NO. 759

Steve Bass is a contributing editor for PC World, *a licensed marriage and family therapist, and president of the Pasadena IBM Users Group.* ■

PC WORLD MULTIMEDIA EDITION

Red Alert Commands Your Attention

QUIT STALIN: RED ALERT pits the West against Russia in an alternative World War II.

ENTERTAINMENT

WHEN YOU CAPTURE the real-time strategy market the way Command & Conquer did, you face real-time pressure to publish a worthy sequel. **Command & Conquer: Red Alert** fills the bill, with dramatic improvements in animation, weaponry, and missions.

Red Alert uses a fictitious World War II scenario. The story begins as Albert Einstein travels back in time to prevent Adolf Hitler's reign of terror, thus averting the Holocaust. However, Hitler's demise opens the door for Joseph Stalin, who unleashes his military juggernaut on Europe. In the first mission, the Allies must rescue Einstein from a heavily guarded Soviet base.

Not playing favorites, Red Alert also lets you take the Soviet point of view. And while mastering the game's nuances can be daunting, the game speed is adjustable. Slower is better for monitoring combat, resources, training, and construction, especially as you move into advanced missions.

As in the original game, Red Alert generates super-VGA terrain graphics on the fly as you explore new areas. This makes the effects of terrain and artificial barriers on combat much more realistic, putting a premium on strategic placement of troops and defensive weapons.

Although the game's artificial intelligence makes a formidable opponent, Red Alert really shines in a multiplayer environment.

The disc includes software for Westwood Chat, a free online service from the developers of Red Alert that allows C&C combatants to exchange strategies and arrange head-to-head contests over the Internet. Fueled by improved graphics and a wealth of new armament, Command & Conquer is rolling again, and stores may face a red alert just trying to keep this one in stock. —*Mark Cohen*

Command & Conquer: Red Alert

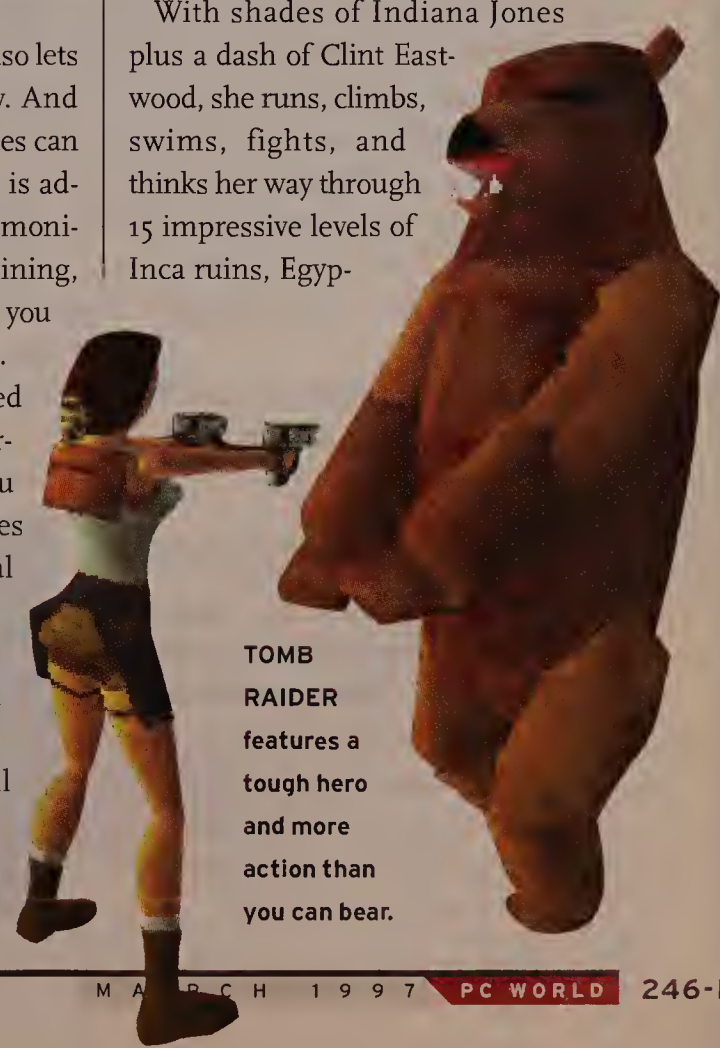
$49 street; Westwood Studios; 800/874-4607; http://www.westwood.com. Grade: **A+**

READER SERVICE NO. 770

TOMB WITH A VIEW

IN THEIR OWN dweeby way, computer gamers have become pretty demanding. So a game's fun and has drop-dead graphics? Yawn. Nowadays you need that and a hook, too—celebrity voice talent, an intriguing story line, or, in the case of **Tomb Raider,** a cool lead character. This adventure's protagonist, Lara Croft, is sexy, tough, and cultured.

With shades of Indiana Jones plus a dash of Clint Eastwood, she runs, climbs, swims, fights, and thinks her way through 15 impressive levels of Inca ruins, Egyp-



TOMB RAIDER features a tough hero and more action than you can bear.

tian pyramids, and—well, not to ruin any surprises, let's just say things get weird pretty quickly.

You control game play through a camera view that follows Lara through a series of 3-D environments. Stay alert or you'll miss a clue—or even die because you didn't keep an eye on what's above Lara's head. Tomb Raider's ruins and catacombs are satisfyingly realistic; empty and asymmetrical chasms are interspersed with artifices and traps.

But don't be fooled by the pretty scenery—you'll quickly get down to some serious bloodletting. Those twin pistols on Lara's hips aren't fashion accessories: Wild dogs, bats, bears, and that other, most dangerous predator—humans—inhabit the gorgeous, gloomy depths. When they show up it's time to draw those irons and go ballistic.

INCA RUINS AND EGYPTIAN pyramids give Tomb Raider an impressive look and feel.

One nice touch is the option to visit Lara's stately mansion, where a tutorial takes place. As you move from room to vast room, Lara's British lilt gives you the basics of jumping, climbing, and other special moves you'll need to master for ultimate victory. Tomb Raider is a classy piece of work. I'm already looking forward to the sequels. —*Chris Hudak*

Tomb Raider

$50 street; Eidos Interactive; 415/616-2022; http://www.eidosinteractive.com. Grade: **A**

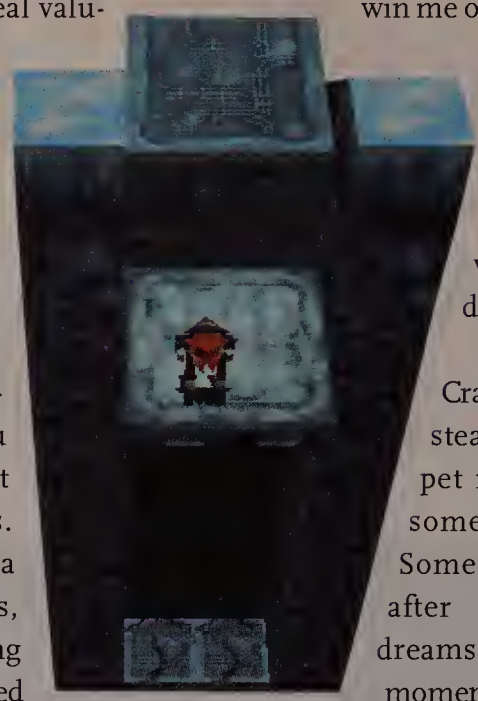
READER SERVICE NO. 771

ROMPING INTO THE FUTURE

IF DESCENT LEAVES YOU dizzy and Doom makes you queasy, try Viacom New Media's **The Divide: Enemies Within.** Originally designed for the Sony PlayStation, this futuristic 3-D action game emphasizes jumping, leaping, and grabbing as you explore a giant fissure in the surface of an icy, barren planet.

As the game begins, drooling space mutants bonk you on the head and kidnap your partner. Fortunately, your Terragator bodysuit absorbs most of the blows. The mutants steal valuable devices from the space probe and strip you of almost all your weapons and devices, leaving you with one laser and a nasty limp.

Your quest to find your partner and recover the stolen space probe components takes you through eight different worlds and 75 levels. Along the way you meet a wide range of enemies, from pesky, face-hugging insectoids to heavily armed level bosses.



THE DIVIDE: Sonic the Hedgehog meets Doom.

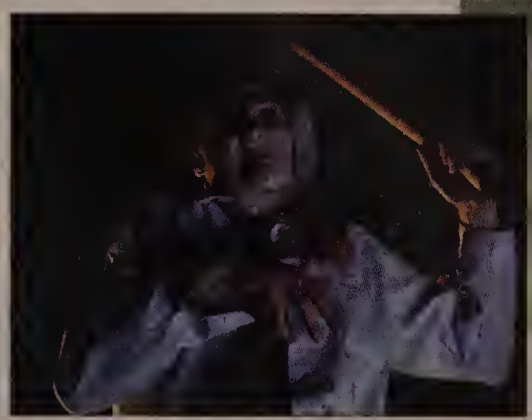
Nasty enemies are nothing new to adventure games. However, The Divide spices up the genre with a touch of Sonic the Hedgehog: You advance to different levels within each world aboard a series of moving platforms. Navigating the platforms requires practice and timing, since many of the surfaces spontaneously dissolve. Adjustable camera angles and zoom views help you stay on track, but to reach the higher platforms you'll need enhanced jumping ability.

The Divide shrewdly reinvents adventure gaming with an entertaining blend of precise movements and all-out firefights. This game gives you a refreshing new universe to conquer. —*M. C.*

The Divide: Enemies Within

$40 street; Viacom New Media; 800/469-2539; http://www.viacomnewmedia.com/. Grade: **A**

READER SERVICE NO. 772



I'M OKAY, YOU'RE DEAD

HATE INTERACTIVE MOVIES? Me too. Yet **A Puzzle of Flesh,** Sierra On-Line's sequel to Phantasmagoria, managed to win me over. Like its noteworthy predecessor, this cinematic horror game is filled with beautifully rendered environments, full-motion video, and a few rather disturbing themes.

Lead character Curtis Craig is a quiet guy with a steady job, a girlfriend, a pet rat named Blob, and some serious problems. Someone or something is after him, haunting his dreams as well as his waking moments until his psyche is at the breaking point.

What's bothering Curtis? Well, photos bleed, menacing voices come from computer screens and thin air, and memories of a dark secret buried in his past begin to claw their way into the present. Precisely what Curtis must ultimately confront becomes a shadowy tangle of secrets and revelations as he delves into the mysteries of his employer, the Wyntech Corporation. ▶

A PUZZLE OF FLESH picks up where Phantasmagoria leaves off, with gore galore.

A rose is a rose is a...wait a second.

Kodak DC-40 Digital Camera

Casio QV30 Digital Camera

EPSON PhotoPC 500 Digital Camera

$499

THE NEW EPSON® PHOTOPC™ 500 DIGITAL CAMERA WITH SUPERIOR IMAGE QUALITY. Roses are red, violets are blue, but only if you take their picture with the EPSON PhotoPC 500. The digital camera with 640 x 480 pixel resolution that gives you the most lifelike pictures around. It's got all the convenience of a regular camera, from its built-in red-eye reduction flash to its optional lenses and filters. But no other camera has Epson's unique ColorTrue™ in-camera processing and ClearOptics™ system, for accurate, vivid images that add impact to documents or e-mail messages. The PhotoPC 500 is flexible, too. With an optional LCD to preview, playback, or erase images. Memory that expands to hold 200 JPEG images. PC/Mac compatibility. And our free Internet Sampler Pak (valued up to $300) that lets you access and create Web pages. So, when it comes to digital photography, a camera by any other name just isn't as good. For more information, visit www.epson.com to download some sample images, or call 1-800-GO-EPSON and ask for operator 3070.

YOU'VE GOT TO SEE IT IN EPSON COLOR.™

RITZ CAMERA CENTERS

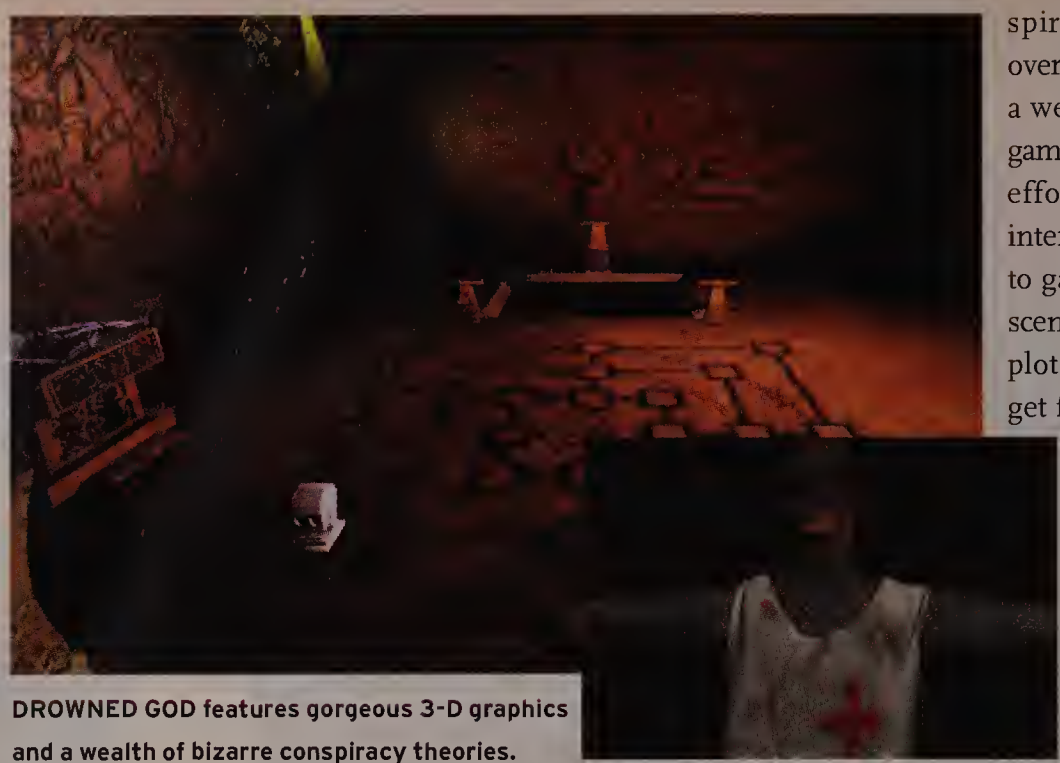
COMPUTER CITY COMPUSA

Street price may vary. Rose photos were taken with the Kodak DC-40, Casio QV30 and EPSON PhotoPC 500 as configured for retail sale. No special effects or lenses were used. Awards given to the EPSON PhotoPC, the first in the line of Epson color digital cameras. EPSON is a registered trademark of Seiko Epson Corp. ColorTrue and ClearOptics are trademarks of Epson America, Inc. All other trademarks are the property of their respective owners. ©1996 Epson America, Inc.

NetGuide BEST BUY

FamilyPC

At times, Phantasmagoria: A Puzzle of Flesh seems as much a soapbox for the designer's pop psychology concerns as electronic entertainment. Issues like repressed child abuse, homosexual longings, and sadomasochism surface as the story unfolds. As with Phantasmagoria, a password-protection scheme lets you determine whether or not you see the more intense version of the game, which includes frontal nudity and a fair amount of gore.



DROWNED GOD features gorgeous 3-D graphics and a wealth of bizarre conspiracy theories.

This isn't so much a game as it is a movie that requires you to intervene in the plot from time to time. I didn't expect that formula to work, but in the end the commendable acting and the occasional skin-crawling moments made A Puzzle of Flesh worthwhile. But don't buy this one for little Billy or Heather—unless you're ready to follow it up with a long, serious discussion. —*C. H.*

Phantasmagoria: A Puzzle of Flesh

$60 street; Sierra On-Line; 800/757-7707; http://www.sierra.com. Grade: **B**

READER SERVICE NO. 773

SPIN ME A CONSPIRACY

IF YOU LIKE *The X-Files* for its gritty realism, then you'll love **Drowned God,** an adventure game that takes every conspiracy known to humankind (and then some) and wraps them around a 40,000-year-old alien cover-up.

In Drowned God, an alien race from Orion has not only genetically engineered humans but also guided their social and scientific development. Then along came the great flood, erasing much of that work and concealing the world's greatest artifacts: the Rod of Osiris, the Holy Grail, the philosophers' stone, and the Ark of the Covenant.

Your challenge is to visit the four earthly and spiritual realms where these items can be found, unlock a labyrinth of puzzles, and complete several tasks to gather these items one by one. Marvelous graphics, an original score, and quality voice-overs help immerse you in this very strange world.

Die-hard conspiracy theorists who own a copy of "Alien Autopsy" will definitely want to get their hands on this game—at least, before the illuminati manage to have it suppressed.

But unless you're a Myst addict with a taste for the bizarre, you'll probably find that Drowned God is little more than a tough treasure hunt. The conspiracies are ultimately so convoluted that most players will end up dazed and confused. —*Shane Mooney*

Drowned God

$49.95 list; Inscape; 800/510-1791; http://www.inscape.com. Grade: **B-**

READER SERVICE NO. 774

SOFT-BOILED MYSTERY

CYBERDREAMS' **Noir** takes the *multi* out of *multimedia.* This promising but mediocre mystery game relies so heavily upon gorgeous photographs to immerse you in 1940s American film drama that the acting, script, and animation flounder.

Your job in this shadowy thriller is to find a missing L.A. gumshoe by solving six of his cases concurrently (smuggling in Chinatown, missing heiress, and so on). While the cases themselves are uninspiring, their variety and overlapping structure offer a welcome change. Casual gamers will appreciate Noir's effortless point-and-click interface, which allows you to gather clues from crime scenes and witnesses. Major plot segues and interviews get full-motion video treatment, though most of the game moves you through static photographed sets.

But oh, what sets they are. Noir's only real star is the scenery: beautiful black-and-white stills of period architecture and decor. Familiar movie locales like the Griffith Observatory and City Hall are included, as are the tiled hallways, art deco gewgaws, and oversized gadgetry that plant you firmly in wartime L.A. Fans of noir accoutrements will enjoy just browsing the sights.

Like many a wanna-be star, however, Noir is a drop-dead-gorgeous package that fails the audition as soon as it opens its mouth. The actors gesture wildly and pound every syllable. The vapid script, riddled with clichés, has none of the noirish corruption or intrigue you'd expect from such an homage.

If you were hoping for an interactive version of *The Big Sleep,* keep looking. Philip Marlowe might peg Noir as being easy on the eyes but not much of a conversationalist. —*Steven Smith*

BEAUTIFUL PHOTOS make Noir a visual feast, but the game doesn't have a clue.

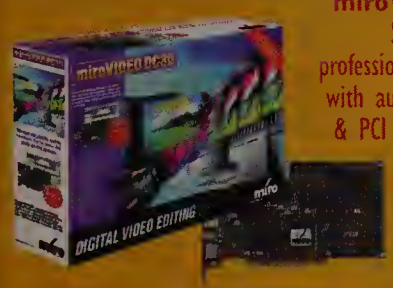
Noir

$45 street; Cyberdreams; 888/357-4337; http://www.cyberdreams.com. Grade: **C**

READER SERVICE NO. 775

With the miroVIDEO DC30, the only difference between your movies and the top studios'...

...is about $40 million.



miroVIDEO DC30
S-Video quality, professional-level board with audio integration & PCI bus mastering. Also for Mac.
$999

miroVIDEO DC20
S-Video quality, mid-range board at a great price; also ideal as a web-cam system. Also for Mac.
$699

miroVIDEO DC10
Good VHS quality for affordable, entry-level digital video.
$399

Maybe you're the next Spielberg. Maybe you just want to be top dog in the wedding video business. Or maybe you want to produce in-house videos that will make your boss wag his tail. Any which way, you can.

The miroVIDEO DC 30 turns your raw footage from your camcorder or VCR into a studio-quality video production on your PC. Professional non-linear digital video and audio editing in Windows 95. Plug and play on any 90Mhz Pentium compatible PC.

Total digital control over your footage in real time at massively accelerated data rates up to 6MB/sec. You can do anything with your footage and do it at full professional speed. Wipes, fades, zooms. Hair-raising, heart-stopping special effects. Every trick in the studio book. Even brilliantly cinematic titles.

Integrated on-board CD-quality audio for full lip sync, stunning SFX, multi-layered soundtracks, broadcast standard, big auditorium impact that rivals the pros.

Studio-quality picture resolution, up to 720 x 486 pixels, adjustable compression for all screens. Input from and output to S-VHS, Hi8, VHS, Video8. Final cut to video tape at express speed. The mirovideo DC 30. It's in the can.

Call us at **1-800-249-6476** for more information.
Resellers and VARS call **415-842-6410**.

miro
...move your mind

miro is a trademark of miro Computer Products AG.
All other company or product names are trademarks or registered trademarks of their respective owners. Copyright miro Computer Products 1997

Circle 150 on reader service card

A SCI-FI JUNKIE'S JOURNEY

SIERRA ON-LINE'S **Rama,** based on Arthur C. Clarke's book series of the same name, is a dream world sure to seduce even the most hard-bitten realist.

As a member of an elite scientific expedition, you investigate a floating alien space station that has appeared in our solar system. This enormous spacecraft contains eerie worlds populated by elusive octo-spiders and scavenging crab biots, among other alien species. Atmospheric music and a wandering, unrestricted type of game design—you simply stumble upon most items and puzzle rooms—make it easy to lose yourself for long periods of time.

Stellar graphics combine with excellent acting, absorbing game play, and tough puzzles. Colorful, sweeping vistas and fully rendered 3-D aliens give the eerie, you-are-there-but-you-don't-know-where feeling that all sci-fi junkies crave.

In general, Rama is more about the journey than the destination. Though the game's pace is slow and some puzzles require considerable patience, the real treat is a unique universe, created by one of the sci-fi masters, at your disposal for hours of exploration.

When you eventually uncover the secret of Rama, you may regret that you ever finished the game. —*Hugh Foster*

Rama

$59.95 list; Sierra On-Line; 800/757-7707; http://www.sierra.com. Grade: **B+**

READER SERVICE NO. 776

FREQUENTLY ASKED QUESTIONS

AN INTRIGUING murder mystery set in Europe, **Circle of Blood** makes you rely on your social skills as well as your cunning.

An American in Paris, you witness a man in a clown suit bomb a sidewalk café. You then spend the rest of your vacation tracking down the killer and uncovering his affiliation with an ancient group of assassins. The game blends fiction with historical fact to create a plausible and thrilling story.

To complete Circle of Blood, you need to ask a lot of pointed questions and use your keen powers of observation. A simple interface letterboxes the screen, with a strip of inventory items across the top and a list of conversation topics along the bottom. Solving puzzles in this adventure means exhausting all possible topics with every person you encounter; sometimes you interrogate the same characters repeatedly.

Through conversation, the characters reveal clues that let you explore new areas. But Circle of Blood tends to have too much talk and not enough action. For instance, when a man is hit by a Ferrari and then abducted by the driver, you react by interviewing people instead of chasing after the car.

CAFÉ BOZO: In Circle of Blood you must find the clown who blew up this café.

Both the animated scenes and the interactive sequences feature unique camera angles that provide much-needed variety of viewpoint. Even long shots include animated items like passing traffic or construction workers toiling in the background.

Alhough Circle of Blood is often smart and funny, it can get tedious, as you ask the same questions of each character until you stumble upon the correct line of inquiry. With all the talking you have to do, a better title might be Sewing Circle. —*Jeffrey Adam Young*

Circle of Blood

$54.95 list; Virgin Interactive; 800/874-4607; http://www.vie.com. Grade: **B**

READER SERVICE NO. 777

ILLEGAL ALIENS: In Ravage D.C.X you try to save the planet from the evil Necron.

THE RAIL THING

LEAVE IT TO the government to really screw things up. In Inscape's **Ravage D.C.X,** the fed's top-secret Project Vortex opens a doorway to another dimension. Unfortunately, waiting on the other side are the Necron, a cruel race devoid of any purpose save the complete domination of Earth (kind of like Rupert Murdoch).

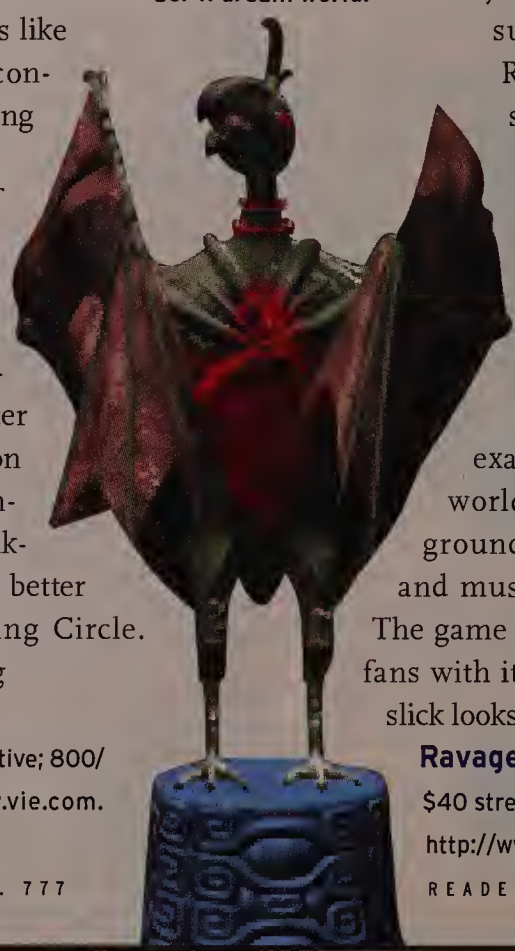
Your mission is to travel to six other dimensions that are enslaved by the Necron and destroy the converters they use to lock on to our dimension. You help the hero achieve his objectives by blowing up the bad guys along the way.

Ravage D.C.X is like an interactive graphic adventure on speed. If you're familiar with titles such as Cyberia and Rebel Assault, you'll instantly recognize this sort of "rail" game: You move along a predetermined path, shooting at anything unfortunate enough to land within your crosshairs. Though Ravage won't exactly set the gaming world on fire, its backgrounds, animated scenes, and music are well executed. The game will entertain shooter fans with its nonstop action and slick looks. —*S. M.*

Ravage D.C.X

$40 street; Inscape; 800/741-3043; http://www.inscape.com. Grade: **B-**

READER SERVICE NO.778 ■



RAMA creates a sci-fi dream world.

The ultimate presentation power tool.

You've got powerful ideas. And finally, there's a tool that can bring them to life. Introducing the Epson® PowerLite™ 5000 SVGA projector. With the perfect combination of portability, brightness and versatility, you can now deliver dazzling presentations anytime, anywhere.

The world leader in high-performance, portable projectors. With 450 ANSI lumens, it's the brightest portable SVGA projector in its class, so you can make brilliant presentations *without* turning off the lights. All of this comes in a compact package that weighs about 14 lbs., so it is easy to take on the road. Plus, Epson's revolutionary SizeWise™ Resizing Technology even reproduces high-resolution XGA images with astonishing clarity.

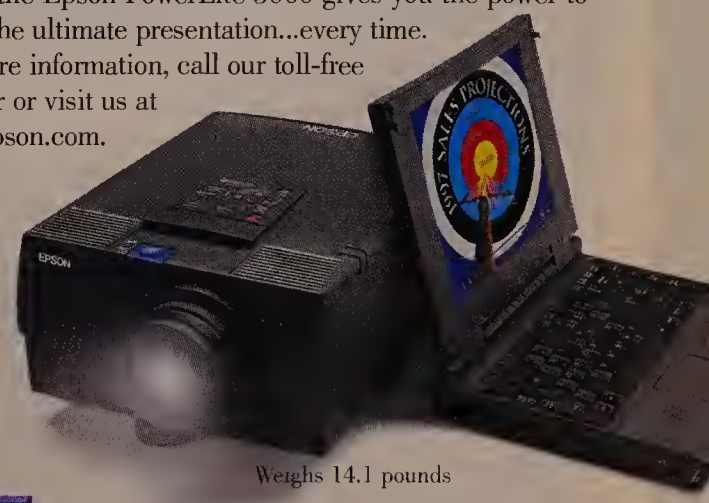
MACUSER EDITORS' CHOICE AWARD 1995 FINALIST

PRESENTER'S CHOICE Presentations Magazine

*The **Power**Lite 5000 is the newest member of our award-winning line of 3-LCD high-performance projectors.*

Greater versatility and ease-of-use. In just seconds, you can connect to two computers (PC/Mac) *plus* a VCR, simultaneously. The Epson PowerLite 5000 supports full-motion video, colorful text, animated graphics and 3-D stereo sound to add more impact to your multimedia presentations. And with our new Chronos™ lamp, you can get about five years of lamp life, without the hassle or expense of constant lamp changes. For added confidence on the road, Epson's Road Service Program can offer a replacement projector, usually overnight.

So, whether you're going around the corner or around the world, the Epson PowerLite 5000 gives you the power to make the ultimate presentation...every time. For more information, call our toll-free number or visit us at www.epson.com.



Weighs 14.1 pounds

For Free Video call 1-800-442-1977 and ask for operator 3088.

YOU'VE GOT TO SEE IT IN EPSON COLOR.™

Epson is a registered trademark of Seiko Epson Corp. PowerLite, SizeWise and Chronos are trademarks of Epson America, Inc. All other trademarks are the property of their respective owners. Award and nomination given to the ELP-3000, the first in Epson's line of projectors with 3 LCD technology. Chronos lamp life based on 8 hrs. use/week, 50 weeks/year. Road Service Program valid in US and Canada only and is free while under Epson's one-year limited warranty. ©1996 Epson America, Inc.

PC WORLD

TOP 5 CD-ROM DRIVES

	CD-ROM DRIVES	Month tested	Street price (12/10/96)	Overall rating	Multimedia performance score	Comments	Reader service number
1	Toshiba XM-5701B 12X 714/457-0777 http://www.tais.com/taisdpd	Feb 97	$195	99	106	**FEATURES:** Superfast 12X internal drive; SCSI bus; tray-feed mechanism; driver support for Windows 3.1, 95, and NT, and OS/2 and Mac. **PRO/CON:** Best transfer rate in Top 5 (1.8MB per second), generous 256K buffer, less expensive than some 8X drives; no toll-free or weekend support.	630
2	Plextor 12Plex PX-12TSI 800/886-3935 http://www.plextor.com	Jan 97	$329	98	105	**FEATURES:** Fast 12X internal drive; SCSI bus; tray-feed mechanism; driver support for Windows 3.1, 95, and NT, and OS/2 and Mac. **PRO/CON:** Best access time of any drive we've tested, big 512K buffer, two-year warranty, toll-free support; expensive, no weekend support.	631
3	Plextor 8Plex PX-83CS 800/886-3935 http://www.plextor.com	Aug 96	$309	90	90	**FEATURES:** 8X internal drive; SCSI bus; caddy-feed mechanism; driver support for Windows 3.*x*, 95, and NT, and OS/2 and Mac. **PRO/CON:** Speedy, two-year warranty, solid design; expensive, SCSI card not included, no weekend support.	632
4	Teac CD-58E 8X CD-ROM 213/726-0303 http://www.teac.com	Aug 96	$149	89	84	**FEATURES:** 8X internal drive, NT drivers added, Enhanced IDE, tray-feed mechanism with clips for side-mounted use. **PRO/CON:** Strong performer, reasonably priced; no software bundle, limited 128K buffer, no Mac or OS/2 drivers, no toll-free support, no weekend support.	633
5	NEC MultiSpin 6V 800/632-4636 http://www.nec.com	Aug 96	$99	89	65	**FEATURES:** 6X internal drive, Enhanced IDE, tray-feed mechanism with clips for side-mounted operation, includes adapter card and cables for Sound Blaster card. **PRO/CON:** Inexpensive, toll-free support; slowest performer in Top 5, no software bundle, no weekend support.	634
	Best Buy					All products:	904

THIS MONTH WE TESTED Teac's new 12X drive, the CD-512E. But sluggish performance keeps this $149 unit from joining its 8X sibling in the Top 5. Meanwhile, Sony has discontinued its 8X CSD-880E drive, making room for NEC's MultiSpin 6V to return to the Top 5.

HOW WE TEST All drives are tested on a Gateway 2000 P5-166XL with 16MB of RAM and Windows 95. At 1024 by 768 at 256 colors, we run Macromedia Director 5.0 I/O benchmark, Microsoft Encarta 96 script, PowerFinder PhoneDisc 96 timed name search, and MindScape CyberSpeed game installation. We run a 98-image slide show in Corel PhotoLab and run the CD-Tach low-level CD-ROM benchmark utility. The overall rating is based on performance (40 percent), features (30 percent), price (20 percent), and support (10 percent). For all ratings, higher is better. Data based on tests designed and conducted by the PC World Test Center. All rights reserved.

PC WORLD

TOP 5 SOUND BOARDS

	SOUND BOARDS	Month tested	Street price (12/15/96)	Overall rating	Audio score	Comments	Reader service number
1	Ensoniq Soundscape Vivo 90 800/776-8637 http://www.ensoniq.com	Jan 97	$75	112	89	**FEATURES:** Plug and Play, telephone answering device/modem. **PRO/CON:** Very good frequency response, bargain price, low noise, high-quality MIDI wavetable, compatible with PC-based phone answering machine and Internet phone software, trouble-free installation; no IDE connector.	635
2	Orchid NuSound PnP 32 800/577-0977 http://www.orchid.com	Jan 97	$135	104	93	**FEATURES:** Plug and Play, IDE and Panasonic CD-ROM interface, 3-D audio. **PRO/CON:** Very good frequency response, low noise, excellent wavetable MIDI, control panel on front of PC; noisy 3-D audio, reversed output channels, limited mike monitor, high distortion on speaker output.	636
3	Creative Labs Sound Blaster 32 800/998-5227 http://www.creativelabs.com	June 96	$149	100	90	**FEATURES:** Plug and Play, 512K of RAM expandable to 8MB. **PRO/CON:** Excellent audio performance, good microphone input, professional-grade wave editing and MIDI software, easy installation; mediocre MIDI sound, poor frequency response on microphone input.	637
4	Aztech WaveRider Pro32-3D PnP 800/886-8859 http://www.aztechCA.com	Dec 96	$69	99	68	**FEATURES:** Plug and Play, 3-D audio, IDE interface. **PRO/CON:** Good MIDI wavetable, extremely low price, easy installation, effective 3-D sound; poor microphone recording, low line input overload level, lacks reverb and chorus features.	638
5	CrystaLake Model 110 503/222-2603 http://www.crystalake.com	Aug 96	$129	97	87	**FEATURES:** Plug and Play; 3-D sound with adjustable center, fill, and effect depth; stereo microphone input. **PRO/CON:** High-quality wavetable MIDI sound, realistic 3-D sound effects, good frequency response, three-year warranty; poor cross-talk figures, no reverb or chorus.	639
	Best Buy					All products:	905

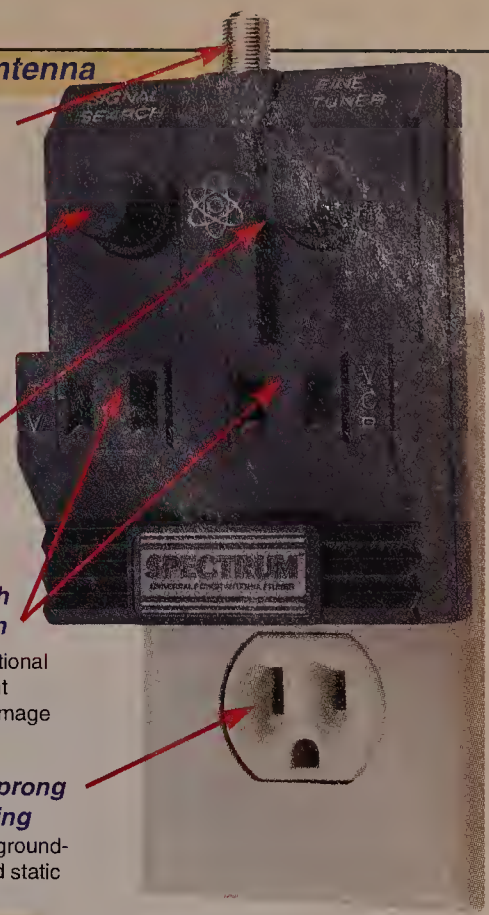
NEITHER OF THIS MONTH'S new contenders could crack the Top 5. Ubi Soft's pricey ($299) MaxiSound Home Studio offers only average audio. Crystal's $180 Crystalizer TidalWave 32 PnP couldn't record .wav files due to severe distortion and poor frequency response.

HOW WE TEST All sound boards are tested on an Audio Precision System Two audio test set to determine their frequency response, cross talk, noise, distortion, and other audio characteristics. We judge each board's MIDI (Musical Instrument Digital Interface) and .wav audio quality by comparing sample sounds against original source material on digital audio tape. The overall rating is based on performance (40 percent), features (25 percent), price (25 percent), and support (10 percent). For all ratings, higher is better. Data based on tests designed and conducted by Liberman Sound. All rights reserved.

TECHNOLOGY UPDATE

Patented microelectronic antenna converts your home's wiring into a giant signal-grabbing magnet!

This little box uses your home's electrical wiring to give non-subscribers, cable subscribers and satellite users better TV reception on your local broadcast networks!



Until recently, the only convenient way to guarantee great TV reception was to have cable installed or place an antenna on top of your TV. But who wants to pay a monthly cable fee just to get clear reception, or have rabbit-ear antennas that just don't work on all stations? Some people just aren't interested in subscribing to cable. Or they may live in an area where they can't get cable and TV-top antennas aren't powerful enough. And what about those people who have cable or satellite systems but still can't get certain local stations in clearly?

Now, thanks to fifteen years of microelectronics research, a new device has been developed that actually makes conventional antennas a thing of the past. It's called the Spectrum Universal Antenna/Tuner!

Advanced technology. If you live in a rural area, you may have resigned yourself to accept the fact that your local TV reception is poor. (This may be true even if you *don't* live in a rural area!) Now imagine watching TV and seeing a picture clearer than before. Simply plug the Spectrum Antenna into a standard AC outlet and plug your TV into the Spectrum. Get ready for great reception because your TV will display a clearer, focused picture, thanks to Spectrum's advanced signal controls.

Uses your home's electrical wiring. The Spectrum Antenna is a sophisticated electronic device that plugs into a standard wall outlet. Basically, the outlet interfaces the Spectrum with the huge antenna that is your home wiring network. Simply put, it turns the electrical wiring in your house or apartment into a multi-tunable TV reception antenna that will improve your TV's overall tuning capability.

How it works. Broadcast TV signals are sent out from the local broadcast station. Those signals interface with your home's AC power line system, creating an aerial antenna network of wiring as large as your home itself. When the Spectrum Antenna connects to the AC line, the signal is sent to its signal processing circuit. It processes and separates the signal into 12 of the best possible antenna configurations. These specially-processed signals route themselves into 12 separate circuits. A 12-position rotary tapping switch, the "Signal Switch" control, gathers 12 of the best antenna configurations resulting in improved picture quality.

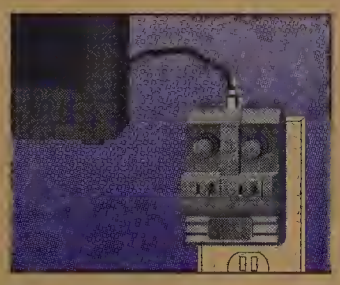
The "Signal Search" offers varying antenna configurations for you to select from the best signals of all those being sent. The signal then passes through the Spectrum Antenna's special "Fine Tuner" circuit for producing more clear reception.

Rural areas. Most TV signals in rural areas are weak, making them harder to fine tune. The "Gain Booster" is a high-frequency signal booster designed to increase the output level of the signal entering your television. It delivers a 10-fold greater signal which will bring richer color and a noise-free picture. By using the Gain Booster, Spectrum's fine tuning controls will function better, giving it a stronger signal to tune. It also works in conjunction with your outdoor antenna!

Risk-free. The Spectrum Antenna/Tuner comes with our 90-day risk-free trial as well as a 90-day manufacturer's warranty. Try it yourself, and if you're not satisfied, return it for a "No Questions Asked" refund.

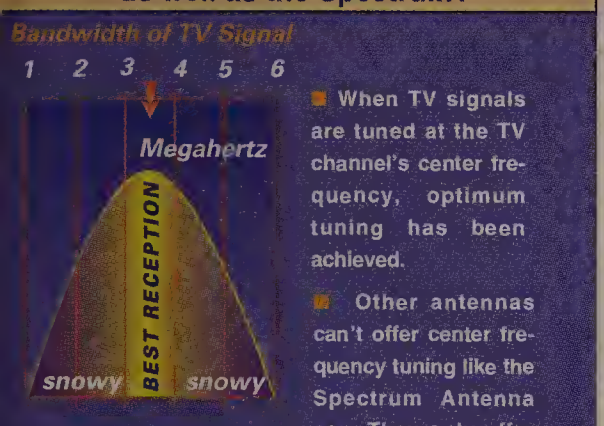
Who can use Spectrum?

- ***Cable users-You have cable but you can't get certain local stations in clearly.***
- ***Non-cable users-You don't have cable and want the stations to come in more clearly.***
- ***Satellite users-You have a digital satellite system but can't get local stations clearly.***

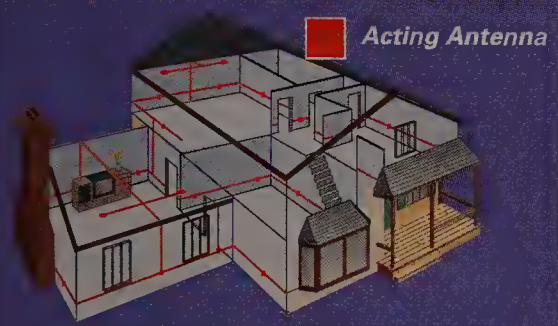


The Spectrum Antenna gets plugged into a three-prong outlet and can accommodate two additional plugs in its surge protected ports.

Why don't conventional antennas work as well as the Spectrum?

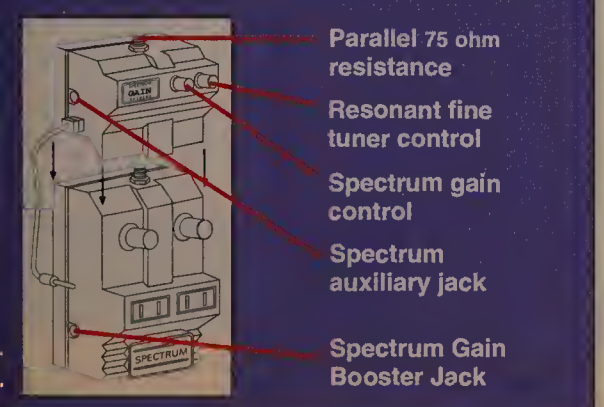


- When TV signals are tuned at the TV channel's center frequency, optimum tuning has been achieved.
- Other antennas can't offer center frequency tuning like the Spectrum Antenna can. They only offer such tuning up to the edge of the center frequency. As a result your TV picture remains snowy.



The Spectrum Antenna "activates" the giant antenna that already is in your home. It uses all of the wiring throughout your home's walls and ceilings to make an antenna as large as your house for unbelievably clear reception of local broadcasting.

Spectrum with Gain Booster Features



Limited time offer! We realize that most people have more than one TV in their home. That's why we're offering a special discount on additional Spectrum Antennas so you get great reception on all your TVs!

Spectrum Antenna.....**$39** $4 S&H
Additional antennas just.....$34 S&H free

Gain Booster.....**$19** $2 S&H
Please mention promotional code **2154-10413.**

For fastest service, call toll-free 24 hours day

800-230-5023

DISCOVER NOVUS VISA MasterCard AMERICAN EXPRESS Cards

comtradindustries
2820 Waterford Lake Drive, Suite 102 Midlothian, VA 23113

DON'T JUST READ...

Dig Deeper!

Listen!

Interact!

Check out PC World's award-winning Web site – an interactive gateway to even more of the powerful PC-buying and how-to information you're looking for.

http://www.pcworld.com

FREE offer! Register with PC World Online, and each day we'll e-mail you the computing tips of your choice absolutely FREE! Select from:

- Microsoft Windows 95
- Netscape Navigator
- Shareware Picks
- Microsoft Office
- Macintosh
- Microsoft Publisher
- Lotus Notes
- Lotus SmartSuite
- Microsoft Windows NT
- Cool Web Sites
- Bugs & Fixes
- Computer Industry Gossip
- Microsoft Internet Explorer
- *Tangled Web* (Soap Opera)
- PC Games

We'll also keep you abreast of exciting new content, features and contests through our weekly newsletter, PC World Watch.

Register today at:

http://www.pcworld.com/tips4free

PC WORLD online

DOS Games Plod Along Under Windows

BY PATRICK MARSHALL AND TOM MARSHALL

I RECENTLY PURCHASED the NHL 96 CD-ROM by Electronic Arts Sports. I can run this game in DOS under Windows 95, but it's slow and the graphics aren't exactly crisp. If I run the disc in DOS with Windows shut down, the graphics and speed improve dramatically, but the sound card, mouse, and game pad don't work. This happens with all my other DOS games too. How can I improve play in Windows or get those devices to work outside Windows?

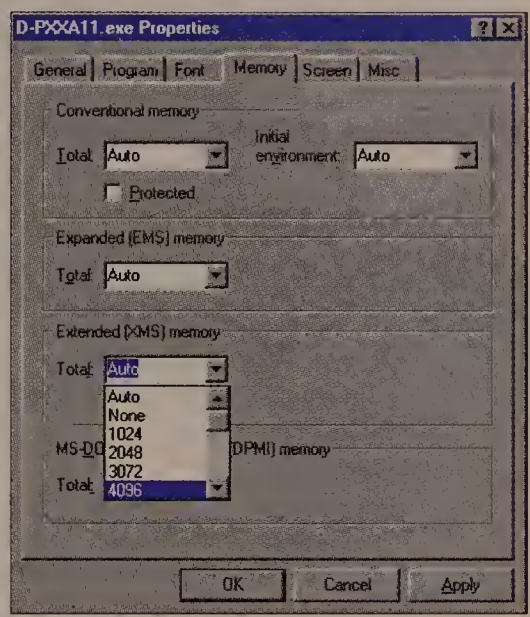
Tyler Gibson, Riverdale, Utah

ALAS, IT'S COMMON FOR DOS games to perform poorly under Windows 95. The problem isn't with Windows but in the way that some DOS games access memory. Most games require a lot of conventional memory (the first 640K of RAM); and many were written to take advantage of expanded memory, a separate area of memory that programs access through upper memory (the area of RAM from 640K to 1024K) using a memory manager. While Windows 95 provides controls for adjusting the amount of memory available to DOS applications, the end result is never as gratifying as when you simply run DOS games in DOS.

As for the reason your sound card, mouse, and game pad disappear when you go to DOS, that one's easy to figure out. To access those devices under DOS, you also need to install their DOS drivers. The drivers should be available on a floppy disk that came with each device, or on the manufacturer's Web site. Go to the DOS prompt and install the DOS drivers, following the directions specified in the device manuals. This process will copy certain files to your hard drive and will modify your autoexec.bat and config.sys files to load the appropriate drivers.

But wait, you're not quite finished. While this procedure works fine for all devices using Windows 3.1, it won't work with mice running under Windows 95. That's because Win 95 automatically loads its own mouse driver even when you open a DOS window. You may have conflicts if you install a DOS mouse driver in autoexec.bat.

Probably the best solution is to use a boot disk to start your system in DOS. Then you can load all the appropriate drivers your system needs by using the autoexec.bat and config.sys files on the floppy boot disk, leaving your Windows 95 configuration untouched.

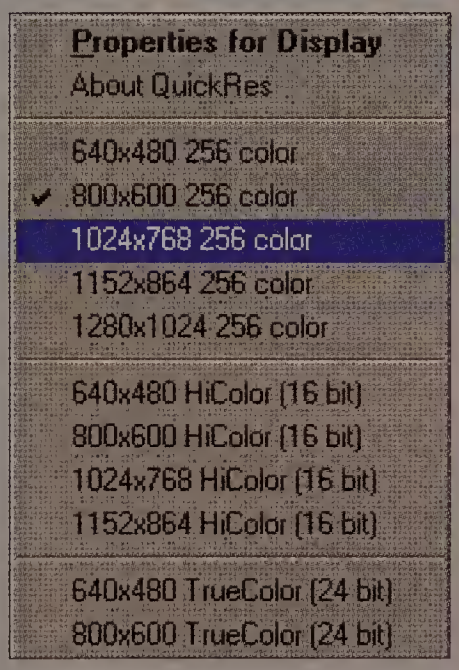


RECOVERED MEMORY: Windows 95 lets you reserve memory for DOS apps, but some older games will run only in DOS mode.

Switch Screen Resolutions on the Fly

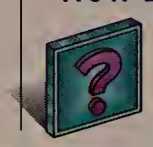
YOU QUIVER WITH ANTICIPATION as you load your favorite shoot-'em-up. Then the dreaded message appears: 'Program can only run in 256-color mode'. So you go to the Display utility in the Control Panel to crank the number of colors down to 256, only to discover that Windows 95 demands you reboot the entire system. All this just to play a game. Sheesh.

Fortunately, Microsoft provides QuickRes, a free Win 95 utility that lets you switch resolutions and color levels on the fly. Why QuickRes wasn't included in Windows 95 is a mystery, but it's a must-have tool. You can download QuickRes from Microsoft's Power Toys Web page (http://www.microsoft.com/windows/common/aa2729.htm). Download the quik_res.exe file to your Windows directory; then go to Windows Explorer and double-click the file to extract its contents, quickres.exe and quickres.inf, to your Windows directory. Double-click *quickres.exe*, and a new icon will appear in the corner of your Windows 95 Taskbar. When you click on that icon, a list of available color depths and resolutions will pop up. Take your pick, and you'll be on your way. If you want QuickRes to load automatically when you start Windows, simply add the program to your StartUp group.



SWIFT RESOLUTIONS: Microsoft's QuickRes utility lets you change screen resolutions and color depth on the fly—no rebooting required.

HOW DO WEB IMAGES FADE IN?

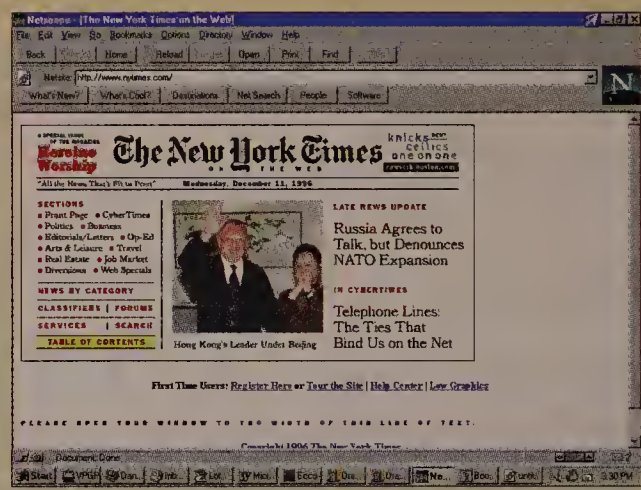


HOW DO WEB SITE designers manage to make images appear with gradually sharpening detail, rather than having them painted slowly line by line in full detail?

James Brown, Atlanta

WHAT YOU'RE DESCRIBING is called *progressive display*, where the screen draws an image in successive passes, increasing the level of detail with each pass. Progressive display is a function of the image file format, but your Web browser must support the format. This type of display is ideally suited to the Web, where users typically don't want to wait for graphics to appear, but do want the option of seeing them in full detail.

Progressive display has been on the Web for years in the form of interlaced GIF files. This format was recently joined by progressive JPEG, which is smoother. All of the leading browsers incorporate p-JPEG as well as GIF capabilities. ▶



PROGRESSIVE THINKING: File formats like GIF and p-JPEG display low-res versions of Web images, and then progressively add more detail, so you can keep on surfin' without waiting for the entire image to download.

A U D I O

SOUND FADES IN DOS

I HAVE AN NEC PowerPlayer LE with an Ensoniq Soundscape sound card. No matter what settings I use, the sound is significantly lower while I'm in DOS mode than it is when I'm in Windows 95.

Patrick Anthony Sekinger, Baltimore

FIRST, CHECK THE SETTINGS in Windows' Volume Control to make sure nothing is out of line. You call up the Volume Control utility by clicking the *Start* button and selecting *Programs•Accessories•Multimedia•Volume Control.*

If that doesn't help, the problem lies with your driver. Ensoniq says early versions of the Windows drivers for the Soundscape card had exactly the problem you describe. Go to Ensoniq's Web site (http://www.ensoniq.com), click the *Soundscape Drivers* button on this home page, click the *Windows 95* button, and then click *Install Wizard 1.00.07* to download the new driver.

If all else fails, you can reach Ensoniq at 610/647-3930.

V I D E O

HARDWARE ACCELERATION GRINDS TO A HALT

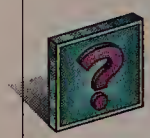
I HAVE SEVERAL GAMES that use DirectX. Unfortunately, when I load them I keep getting a message that tells me there is no hardware acceleration for my Matrox Millennium graphics adapter. Why?

Jon Stewart, Berkeley, California

DIRECTX IS A programming interface that allows a game's Windows drivers to access hardware directly when displaying graphics, playing audio, and implementing other multimedia features. The result is faster, smoother performance than was possible when drivers had to go through the Windows graphics device interface. As far as your graphics adapter is concerned, the critical parts of DirectX are DirectDraw and Direct3D, which let the game perform certain kinds of screen-drawing operations.

While the Matrox Millennium supports some 3-D capabilities, it can't perform some DirectX functions, such as applying certain effects to 3-D objects in hardware. But even though you won't get full DirectX support, the Millennium will provide better performance of DirectX applications than you would see with a regular adapter.

PLAYING THE SLOTS



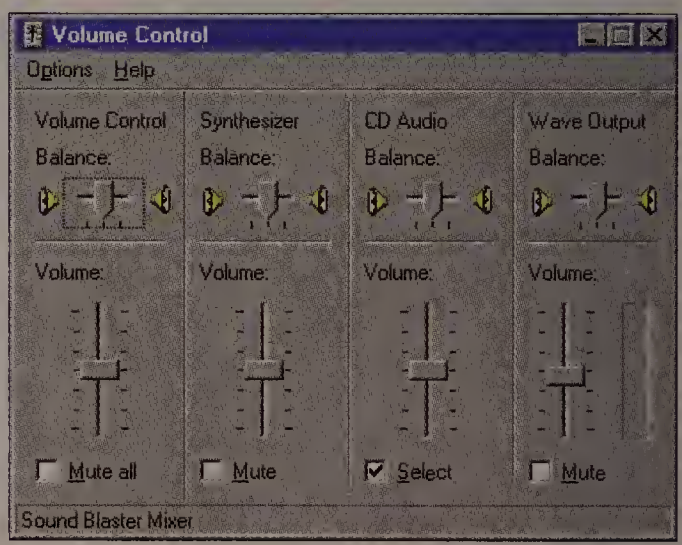
I WANT TO upgrade my video card. Most of the cards I'm interested in say that they require a PCI slot. I have a few expansion slots left in my Compaq Presario CDS 850, but how do I tell if they are PCI?

Richard Ingram, Internet

MOST OF THE PCS SOLD today come with a combination of PCI and 16-bit ISA slots on the motherboard, though there are still a few 486s on the market with VL bus slots rather than PCI. But your Presario 850 has only ISA slots. If you don't want to stick with an ISA video card, you'll have to upgrade your motherboard. You can buy a Pentium PCI motherboard that has 256K of secondary cache for a bit under $200. However, that price does not include the cost of the Pentium processor itself or of memory.

Readers who don't know what kinds of slots their computer has should consult the system manual. If the manual isn't handy, pop the cover off the computer and take a look. ISA slots, which are usually black, are constructed in two contiguous sections, with a longer part toward the edge of the motherboard and a somewhat shorter part on the other end. A PCI slot, by contrast, is built as a single section; it's typically white, shorter than an ISA slot, and set back a little farther from the edge of the motherboard. VL bus slots are constructed as extensions to other kinds of slots (usually ISA). To identify one of these, look for an ISA slot with a third section, often brown, added a little distance beyond the first two. (For information on how to add a new graphics card, see *Upgrade Guide,* January 1997.)

Patrick Marshall is research manager for InfoWorld's *Reviews and Testing department. Tom Marshall is a Seattle-based freelance writer who specializes in computer technology.* ■



PUMP IT UP: Windows' Volume Control lets you specify just how loud you want your sound card to play.

SUBSCRIPTION SAVINGS CERTIFICATE

YOURS FREE!

Plus, 65% off the cover price!

As a special bonus with your order, you will receive the PC WORLD Windows 95 mousepad featuring easy reference and helpful tips to get the most out of Windows 95!

PC WORLD

❑ YES! Enter my subscription to PC WORLD and send my FREE mousepad! I'll pay just $24.95 for 12 monthly issues, that's 65% off the regular newsstand rate.

Name _____

Company _____

Address _____

City _____ State _____ Zip _____

Savings based on annual newsstand price of $71.40. Please allow 6 to 8 weeks for delivery of your first issue. Foreign orders add $46 postage. Canadian orders add $20 postage plus 7% GST (#R124669680).

4MMZ5

Plug into PC WORLD Online now!
http://www.pcworld.com

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 1262 BOULDER CO

POSTAGE WILL BE PAID BY ADDRESSEE

PC WORLD

SUBSCRIPTION DEPARTMENT
PO BOX 51833
BOULDER CO 80323-1833

The Search is Over

Time is valuable.

Why waste it searching through endless no-name Web sites to find the reliable computer-related information you're looking for? All you really need is PC World Online– your one stop shop for expert advice on what to buy and how to use it!

PC WORLD online

Circle 172 on reader service card

www.pcworld.com

HERE'S HOW

ANSWER LINE

New Tips on Adding a Second Hard Disk

I RECENTLY REREAD your February 1996 *Help Line* tip "Add a Second Hard Disk" with great anticipation. I had just purchased a new Seagate 2.1GB hard drive and wanted to transfer the contents of my old drive to it (including Windows 95), then make it drive C:. I followed your instructions but could not get the tip to work.

Jim Reece, Belmont, North Carolina

LET ME APOLOGIZE AGAIN for providing incomplete information. That tip omitted an important step, and we ran a correction in the May issue.

I'm still seeing pleas of help from people who need to move an existing Windows 95 installation to a new drive. "Replace Your C: Drive in Win 95" on the next page provides a corrected, streamlined, and enhanced version of the tip.

Besides adding the /r parameter that lets xcopy overwrite read-only files, I've added /c, which lets the program continue copying if it encounters an error when it gets to Windows 95's swap file.

Since the swap file is re-created each time you start Windows 95, you shouldn't have any problem. However, if your swap file is located on a drive that no longer exists, or if it has a different drive letter after you switch the drives, Windows may gripe. For best results, move it back to drive C: before you start the transfer process: Choose *Start•Settings•Control Panel*. In the Control Panel, double-click the *System* icon, click the *Performance* tab and the *Virtual Memory* button, select *Let me specify my own virtual memory settings*, then pick *C:* from the *Hard disk* list and click *OK•Yes•OK*.

If you're uncomfortable using fdisk, format, and xcopy commands, or if you need to upgrade the hard disks of multiple Windows 95 machines, you may want to give Binary Research's Ghost Professional 1.5.1 utility a try. Ghost does much of the dirty work for you.

But you'll still have to physically install the drive (steps 1 and 2 in "Replace Your C: Drive in Win 95"), use Ghost to replicate the contents of the master drives, then switch the drives' master and slave roles (steps 7 and 8). You can run Ghost within Windows 95 from the command prompt, or from an MS-DOS boot floppy disk. Ghost even handles Windows NT NTFS partitions, OS/2 boot manager partitions, and OS/2 extended attributes; it should support FAT32 by the time you read this. It also lets you copy drive contents over networks and parallel cable connections. Download a 30-day trial version from Binary Research's Web site.

• Ghost Professional 1.5.1; $245; Binary Research; 800/504-9848; http://www.ghostsoft.com

READER SERVICE NO. 760

CONNECT TWO PCS WITH A TWISTED-PAIR CABLE

I WANT TO NETWORK two Windows 95 machines directly to each other. Both have 10Base-T network adapters installed, which use unshielded twisted pair cabling and RJ-45 connectors. What are the cabling requirements to connect these two machines? Can I just get a standard twisted-pair cable and hook them together, or do I need to swap some wires?

James Porter, Lawton, Oklahoma

A STANDARD TWISTED-PAIR cable won't do. Unlike the thin ethernet cabling scheme, which uses coax cabling and BNC connectors in a daisy-chain configuration, a 10Base-T ethernet network is laid

EDITED BY Scott Spanbauer

THIN ETHERNET'S DAISY-CHAIN DESIGN (left) is easy to expand, but any break in the bus topology may shut down your entire network. 10Base-T's hub-based star topology is more resistant to broken connections; two PCs can connect without a hub, using a special cable.

out like an octopus. Each computer connects to a central hub, which may in turn connect to other hubs or a high-capacity backbone network (see the figure above). The hub concept is smart, because if one arm becomes damaged, the rest of the network stays up. By comparison, one broken thin ethernet segment can bring down the entire network.

Nevertheless, 10Base-T's advanced topology makes it tough to whip up a quick-and-dirty home network. You can connect two computers with twisted-pair cabling, but you'll have to use a crossover cable, which transposes the wires within the cable in the same way that connecting both computers to a hub would. And without a hub, your network can never grow beyond two computers. Minihubs that support four or five PCs cost $80. Network Express, a division of Microcomputer Warehouse, offers dozens of hubs, as well as crossover cables. For more information on installing a Windows 95 network, see this month's *Upgrade Guide*.

• Network Express; 800/374-9899, http://www.nei.com/

READER SERVICE NO. 761

Replace Your C: Drive in Win 95

1. Turn off your computer and install the new EIDE hard disk as the second (slave) drive, following the drive manufacturer's instructions.

2. Close up the PC and turn it on. Following the manufacturer's instructions, enter the new drive's settings in your system's BIOS setup program. If your BIOS has already recognized and configured the drive, set the type to *Auto*, and write down the current drive's settings.

3. Enter **fdisk** at the DOS prompt, and partition all or part of the new drive as a primary partition (extended partitions aren't bootable).

4. Reboot and enter **format d: /s** at the DOS prompt; *d* is the letter of the new hard disk.

5. Select *Start•Settings•Control Panel*, and double-click *Add/Remove Programs*. Click the *Startup Disk* tab in the resulting dialog box, click *Create Disk*, and follow the instructions.

6. Close all running applications, then choose *Start•Run*. In the Open field, enter **xcopy c:*.* /e /h /k /r /c d:** and click *OK*.

7. Shut down Win 95, turn off your PC, and rejump the drives following the manufacturer's instructions for exchanging the IDE drives' master and slave roles. Turn on the PC, edit the CMOS drive tables to reflect the change, then continue booting with your start-up disk.

8. Using fdisk, make partition one of disk one the active partition, then exit fdisk and reboot. Win 95 should boot from the new hard disk.

DOOMSDAY REALLY IS COMING AFTER ALL

SEVERAL READERS WROTE about my optimistic predictions of PC behavior at the turn of the century (see "Doomsday 2000?" *Answer Line*, November 1996). Contrary to my assertion, they say, not all systems will handle New Year's Eve, 1999, with aplomb. Some older BIOSes may think the day that immediately follows December 31, 1999, is January 1, 1980. (When I changed the date on my system to December 31, 1999, and the time to 11:59 p.m., four of my own systems, including one with a circa-1988 BIOS, welcomed the new year just fine.)

To find out how your system will behave, boot to the command prompt, enter **date 12-31-99**, then enter **time 23:59**. Wait about a minute, and then enter **date**. If your system reports the date as 01-01-1980, make a note to change the date manually on January 1, 2000, with the command **date 01-01-2000**—that is, if the computer is still in use by then.

According to The RighTime Company's Tom Becker, every personal computer's hardware clock rolls back to January 1, 1900, until the next reboot, even if DOS reports the correct date. Mission-critical systems that run 24 hours a day will have to be rebooted when the ball drops in Times Square so that date-dependent ▶

CONTENTS

ANSWER LINE
248 Second hard disk, cabling PCs
249 Turning 2000
250 Win 95 interface upgrades

WINDOWS TIPS
252 Exiting Windows
254 Help file printing, restoring DOS icon
256 Program Manager UI, Windows NT log-in, renaming computer and workgroup

SPREADSHEET TIPS
258 Lookup formulas, flagging Excel and Quattro Pro values

WORD PROCESSING TIPS
260 Automatic document reformat
262 Format for WinWord line numbers, redisplaying WordPerfect comments

DATABASE TIPS
264 Adding exceptions

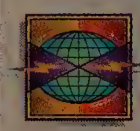
INTERNET TIPS
266 Web graphics, spammers, investing online
268 ADSL hookup, animating Web chats

HARDWARE TIPS
270 Monitor adjustments

MULTIMEDIA TIPS
272 Videoconference add-ons

UPGRADE GUIDE
274 Installing a Windows 95 network

INTERNET



DON'T MISS ADDITIONAL HERE'S HOW information on **http://www.pcworld.com/hereshow.html**.

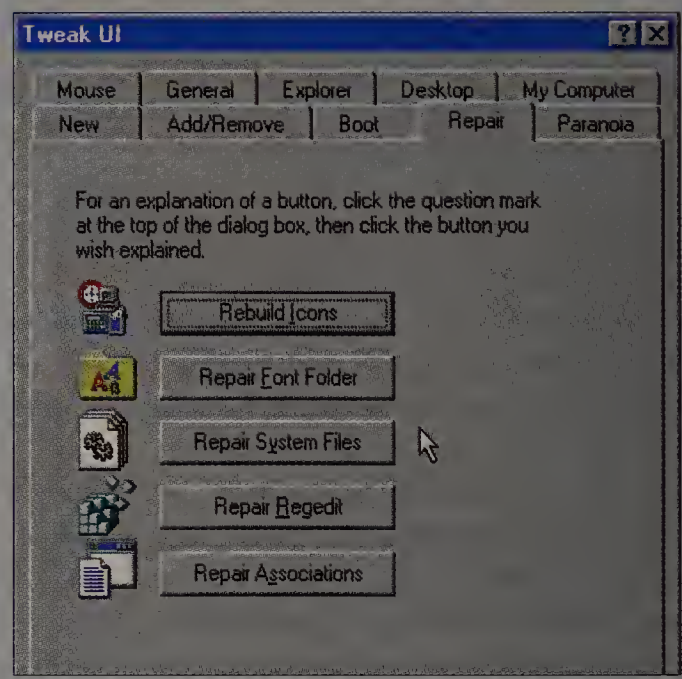
applications can avoid a major hangover.

Becker's firm makes two utilities that can help. Year2000.exe, a memory-resident DOS/Windows program, waits for the magic millennial moment and keeps your system from traveling back in time. Doschk.exe, by Bob Stammers, is a diagnostic tool that determines what your machine's year 2000 behavior will be. Both are available free from the company's Web site (http://www.rightime.com).

And finally, more than one reader wrote to remind us all that the new millennium starts not on January 1, 2000, but rather on January 1, 2001.

Find additional tips at http://www.pcworld.com/hereshow. Answer Line welcomes questions and tips and pays $50 for published items. Contributing Editor Scott Spanbauer is author of The No B.S. Guide to Windows 95 (No Starch Press, 1996, 800/420-7240). See page 12 for contact information.

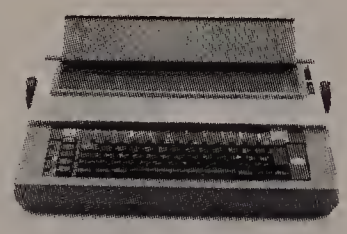
Spice Up the Windows 95 Interface With a Free Microsoft Utility



MICROSOFT'S FREE Tweak UI utility offers a host of handy user-interface upgrades to Windows 95. Version 1.1 of this Control Panel Toy offers numerous new features that let you adjust your Windows user interface, including menu speed, window animation, and Internet Explorer. It also lets you hide desktop icons from other users, delete files without confirmation, and make some desktop repairs.

Tweak UI makes Registry-tweaking tips obsolete by including the ability to remove the names of applications from the Add/Remove Programs' Uninstall list. Tweak UI also squashes bugs that plagued early versions, and it supports Windows NT 4.0.

You can download this Power Toy utility from Microsoft's Web site (http://www.microsoft.com/windows/common/aa2729.htm). To install it, run the self-extracting archive tweakui.exe in a temporary directory, then right-click the *tweakui Setup Information file* in Explorer and choose *Install*.



Class of '80 average cost: about $10,800 for four years of college

Class of '95 average cost: about $26,000

Class of '10 projected cost: about $60,000

Reality is expensive.

Prepare yourself for college with U.S. Savings Bonds.

Today, parents shell out *over twice* what tuition and fees cost in the early 80s. Those $300 typewriters have been replaced by $1,900 computers. So what will it cost when your children are ready? And what will replace the computer — a virtual reality college simulator?

Better start saving now for those future college costs with U.S. Savings Bonds. They're guaranteed safe, earn Treasury-based rates, are guaranteed to earn interest for 30 years, and you can get them through most banks or through employers offering the Payroll Savings Plan. And families and individuals who use Savings Bonds for college tuition may qualify for a special tax exclusion.*

For your copy of the Savings Bond Investor Information pamphlet, write U.S. Savings Bonds, Washington, DC 20226.

*Maximum income and other limitations apply; read IRS Publication 550 and Form 8815 for details.

Take Stock in America U.S. SAVINGS BONDS

A public service of this magazine

"With the new 32-bit Windows version, it's making a strong bid for honors as the best all-around remote control program on the market."

PC World *March 1996*

"Its modular design shines in Microsoft's Windows 95's 32-bit multitasking enviorment. It is easy to use, and it also has features that make it easy for network administrators to manage."

LAN Times *Feb.19,1996*

"LapLink is the easiest program to use, and it's one of the fastest and steadiest."

Federal Computer Week *Feb. 6,1996*

"After hours of testing, a clear usability winner emerged-LapLink was far and away our testers top choice for fuss-free remote access to files, programs, or a network, and for remote training and technical support."

PC/Computing *Sept. 1996*

"LapLink consistently outperformed pcAnywhere on our network. With LapLink, we felt as though the remote system was performing tasks locally, but when we switched to pcAnywhere we still felt as though we were using a modem."

PC Magazine *March 26, 1996*

"...if you haven't upgraded your LapLink in a while, it's time to do it again. LapLink for Windows 95 is good."

BYTE *May 1996*

"LapLink is a powerhouse for, and the granddaddy of, remote computing."

Home Office Computing *May 1996*

"LapLink is a superior remote access client for telecommuters, remote offices and even local clients"

PC Week *April 1996*

"When we matched it up against Symantec's pcAnywhere32 in our labs, we found that LapLink is the product we'd want with us on the road."

PC/Computing *May 1996*

"LapLink is still the tool of choice for laptop users. It may be the only remote access product you need."

LAN Magazine *June 1996*

"...LapLink's speed and intuitive design make it the best choice in the market."

Info World *Jan.29,1996*

If you think file transfer is all we do, you need to catch up on your reading.

Designed for Microsoft Windows 95

Computer industry experts aren't in the habit of agreeing with each other. When they do, it's definitely worth noting.

It's also worth noting that LapLink® for Windows® 95 has racked up more industry awards (fourteen of 'em, at last count) than every other remote access software package. Combined.

So if you aren't yet one of the millions on the move for whom LapLink is the perfect link to the desktop or the network, visit www.laplink.com or call 800-487-4396 today.

We'd be delighted to bring you up to date.

TRAVELING SOFTWARE

©1997 Traveling Software, Inc. LapLink is a registered trademark of Traveling Software.

Circle 243 on reader service card

Training Windows 95 to Hang Up Properly

MANY READERS COMPLAIN that Win 95 hangs when they shut down, so they never get to see that tasteful black screen announcing it's safe to turn off the PC. To put your hearts (and PCs) at rest, try these tips. They're designed for incomplete exits, but most are handy for all-purpose troubleshooting.

1. Check for problem programs. It's likely that the problem is a running application, rather than Windows itself. Restart Windows with the <Shift> key held down to disable the launching of programs in your StartUp folder and put Windows in "safe" mode. Then exit and see if the problem goes away. If it does, remove all but one Shortcut from your StartUp group, and try again. If all goes well, add one more Shortcut back and try again. Repeat until you find the program causing the hang-up.

If that doesn't find the problem, test for any programs started by the win.ini file: Choose *Start•Run*, type **sysedit**, and press **<Enter>**. In the win.ini window, type a semicolon at the beginning (extreme left) of the 'load=' and 'run=' lines to prevent any applications listed there from launching at startup. If that fixes things, make a note of everything on these lines and remove all but one item; then restart and exit Windows. As before, add listed applications one at a time, restarting and exiting each time until you find the application that's causing the problem. Then contact the manufacturer to get an update or a suggested work-around.

2. Study the startup. Find out if the problem stems from a line in the notorious autoexec.bat or config.sys files. Restart the computer and press **<F8>** as soon as you see 'Starting Windows 95' on your screen. Choose the *Step-by-Step Confirmation* option and answer yes (press **y**) when prompted whether to load DoubleSpace drivers, process the System Registry, and load himem.sys, ifshlp.sys, the Windows interface, and all Windows drivers. Answer no (press **n**) to all other prompts. Exit and see if the problem persists.

If the problem is gone, repeat the steps in this tip, but this time press **y** for the above-mentioned items plus one item that you previously blocked from loading. Again, shut down and see what happens. Repeat, loading one additional item each time until you find the problem.

3. Manage your memory. To rule out an upper memory conflict, make a backup copy of config.sys and start the System Configuration Editor as described in tip 1. Edit config.sys to include the line **device=c:\windows\himem.sys** followed by the line **device=c:\windows\emm386.exe noems x=a000-f7ff** (paths may differ on your system). This disables access to upper memory (the area between your first 640K and 1024K) by terminate-and-stay resident programs unless the software is specifically designed to access upper memory unaided. Save the file, restart your computer, and then exit Windows.

If the problem has gone away, the cause is likely an upper memory conflict. Running the Microsoft Diagnostics utility in MS-DOS mode (type **msd** at the prompt in your Windows folder) can identify some software that uses upper memory, but you may need to refer to your documentation or talk to the manufacturer to ferret out hardware conflicts. Once you find the competing entities, consult their documentation on assigning upper memory.

4. Veto the virtual device. Find out if the problem lies with a virtual device driver loaded in system.ini. Start the System Configuration Editor as described in tip 1 and, in the system.ini file, locate the heading '[386enh]'. Put a semicolon at the beginning of each line that follows, beginning with 'device=' and ending with '.386'. Save the file, restart your PC, then exit Windows. If this fixes things, return to the System Configuration Editor and remove one semicolon. Go through the save-restart-exit ritual again to see if the problem returns. Repeat until you find the errant device driver.

If you're lucky, the file's name, path, or comments on the line will give you a clue as to its associated product. You can then contact the driver's manufacturer for help.

5. File it down. Your computer may not get along with Windows 95's file system settings. To check this one out, right-click *My Computer* and choose *Properties*. Click the *Performance* tab and click *File System*. Click the *Troubleshooting* tab and check each of the boxes in this properties sheet (see **FIGURE 1**). Click *OK*, then *Close*, then *Yes* to restart your system. If this solves the problem, you can leave all these settings checked, or experiment with unchecking them one at a time. Once you find the guilty party or parties, you'll need to leave them checked.

6. Silence the sound. Trying to play a corrupted sound file when you exit could be the cause of your problems. To eliminate that possibility, choose *Start•Settings•Control Panel*. Double-click the *Sounds* icon. In the Events list, select *Exit Windows* and choose *(None)* from the Name drop-down list. Click *Yes*, click *OK*, and exit Windows. If all goes well, get an uncorrupted version from the original source. ▶

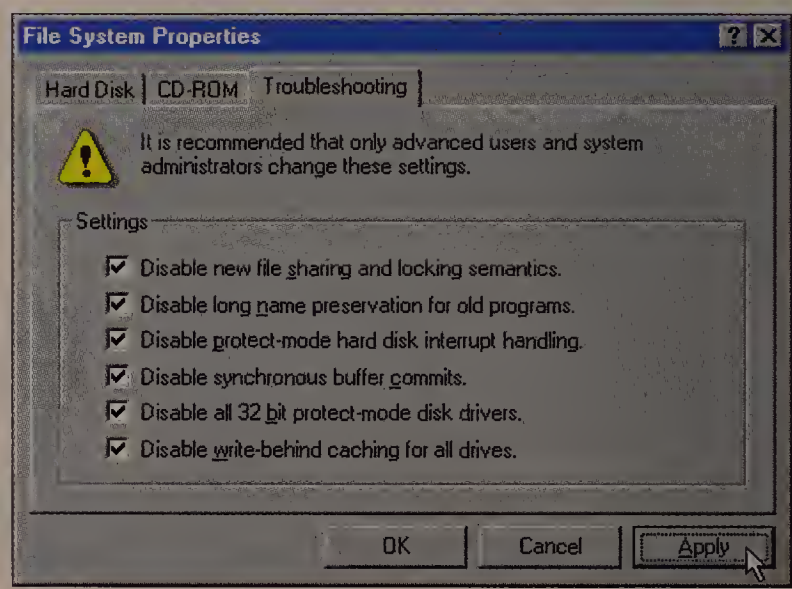


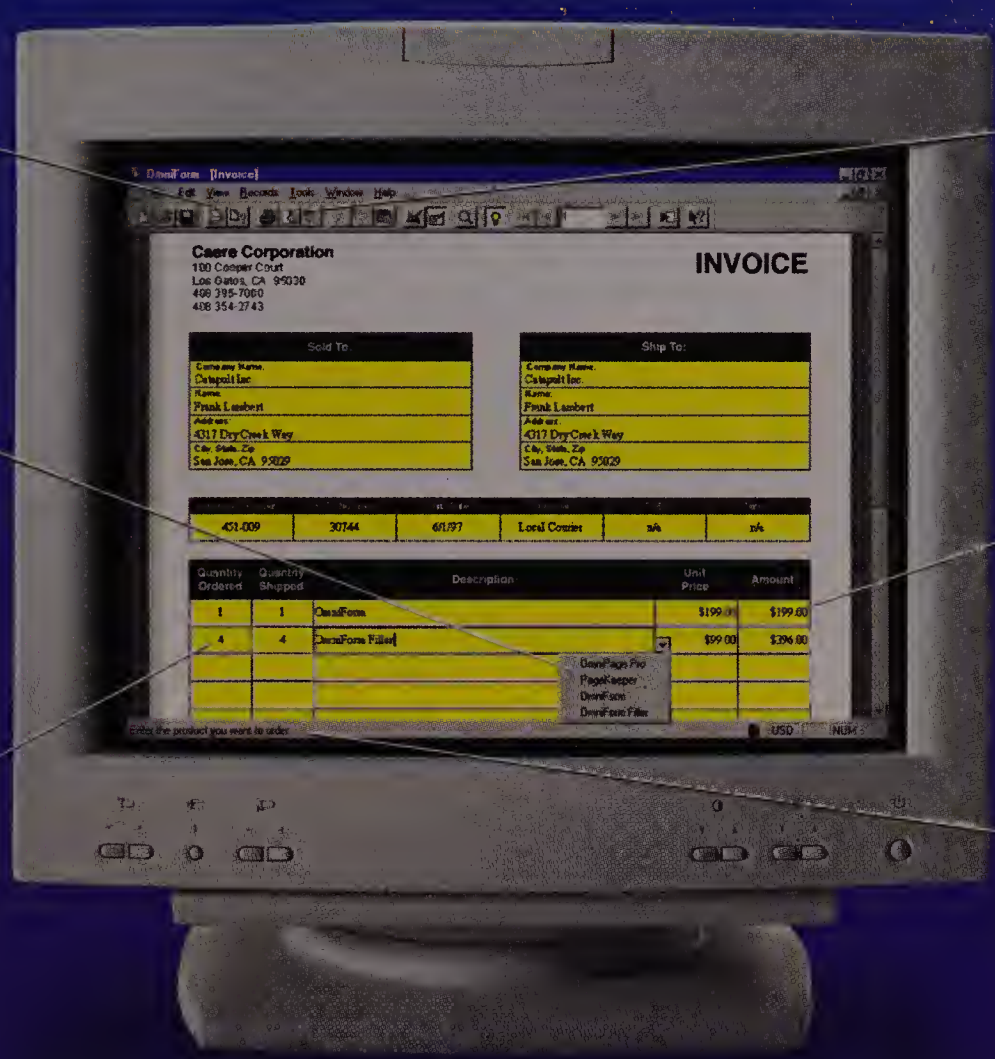
FIGURE 1: USE WINDOWS 95'S FILE SYSTEM PROPERTIES sheet to rule out problems caused by these settings.

SIX KEY REASONS TO MAKE YOUR PAPER FORMS ELECTRONIC.

1 INSTANT FORMS: *Scan in existing forms for easy conversion, pick pre-built form components from a scrapbook or create custom forms using powerful design tools.*

2 EASY TO FILL OUT: *Filling out electronic forms is easy. Just tab and type. Enter data quickly from a list of drop down choices.*

3 DATABASE INTEGRATION: *Automatically builds a database for each form. Search and sort records. Supports popular database formats like Access, dBASE, Paradox and others. Supports OLE 2.0.*



4 SPELL CHECKING: *Electronic forms give you perfect results by spell checking your forms automatically. Plus you can print, fax or e-mail your forms to others.*

5 BUILT-IN CALCULATIONS: *Electronic forms can create calculations automatically or just drag and drop using over 35 Excel-like calculations.*

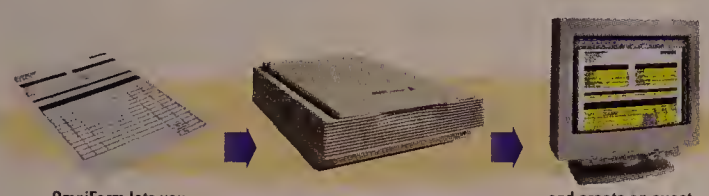
6 HELP: *If you're not sure what to put in a particular field, don't worry. Each field can have a help message that will assist you in filling out the form.*

OmniForm GIVES YOU EXACT ELECTRONIC DUPLICATES OF YOUR PAPER FORMS IN SECONDS.

Don't put up with paper forms any longer. Using Caere's proven, award-winning OmniPage® OCR technology, OmniForm® lets you scan and convert existing paper forms into electronic forms in seconds. The result? Total electronic duplicates you can see on your computer screen, edit, fill out and even spell check. To enter or change data, you just tab and type. It's that easy!

With OmniForm, you can print and fax your forms, or e-mail them throughout your company. And it gives you a simple, but powerful tool set to edit your forms, change fonts, add graphics or design completely new forms from scratch.

OmniForm also performs automatic calculations, validates entries and creates databases. So the information you get from your forms works a lot harder for you, not the other way around.



Want to add users? OmniForm Filler lets even more people use your electronic forms for a small additional cost.

Why deal with paper when you can save so much time and hassle using OmniForm? Call or visit a reseller for your copy today.

caere®

www.caere.com

Now only $199

800-411-8656
extension 190

Available for Windows 95, Windows 3.1, Windows NT and Macintosh

*Suggested price US dollars—subject to change without notice. Offer valid in US and Canada only. Caere, the Caere logo, OmniPage and OmniForm are registered trademarks of Caere Corporation. All other names are the property of their respective holders. © 1997.

Circle 91 on reader service card

7. Shut down the speaker. To rule out problems with the PC speaker driver, start the System Configuration Editor as described in tip 1; in the system.ini file, look for the line 'wave=speaker.drv'. If you find it, place a semicolon at the beginning of the line. Save system.ini, restart your system, and then shut down. If this solves the problem, get a new driver—or consider investing in a new sound system.

8. Purge the power. If your system supports Advanced Power Management, that feature could be to blame. Right-click *My Computer* and choose *Properties*. Click the *Device Manager* tab, then double-click the *Advanced Power Management* icon. Click the *Settings* tab, then uncheck *Enable Power Management*. Click *OK* twice to close the dialog boxes. Restart your computer and shut down Windows. If the problem is gone, contact your system's manufacturer for help.

9. Do away with devices. Check out devices and drivers in the Device Manager. If you haven't found the problem so far, you're in for some fun—not!

Right-click *My Computer* and choose *Properties*. Click the *Hardware Profiles* tab. Select *Original Configuration* and click *Copy* (see **FIGURE 2**). Name the new profile **Test Configuration** and click *OK*. Then click the *Device Manager* tab. Select the *Computer* icon and press * on the numeric keypad to expand the branches in the tree. At the end of one branch, double-click a device icon to open its properties sheet. Click the *General* tab and uncheck the *Test Configuration* box (not every device displays this). Then click *OK*.

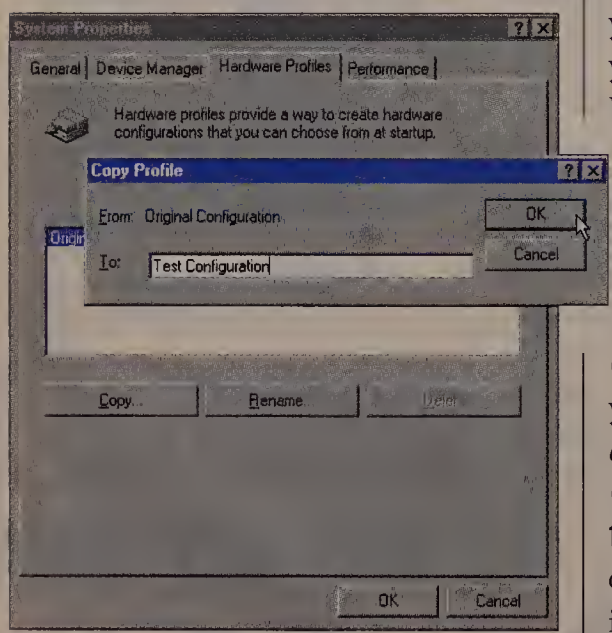


FIGURE 2: SPOT THE PROBLEM DEVICE by adding devices to a test configuration.

Repeat for every device in the tree. If any of them prompts you to restart Windows, select *No*, unless the device is a PCI hard disk controller. Since this cannot be unloaded dynamically you must restart your PC.

After you've unloaded all possible devices from your test configuration, restart your PC. Windows will whine about not knowing which configuration you want; choose the option for the Test Configuration. When Windows starts, you'll get error messages about your video not being properly installed; click *Cancel* in both the message box and the Display Properties sheet. Now shut down Windows 95 again and see if things are better.

If so, the problem is one of the devices or device drivers. Return to the Device Manager, open a Properties sheet for one device and check *Test Configuration*. Restart Windows, then shut down again. Repeat until the hanging problem recurs; at that point you know the last device you added to the test configuration is the culprit. Contact the manufacturer to make sure you have the latest driver and that it is properly configured. Leaving it out of your normal configuration won't help if you have a Plug and Play system because Windows will automatically configure it again the next time you start up, which brings back your hanging problem.

When you're finished testing, right-click *My Computer*, choose *Properties*, and click the *Hardware Profiles* tab. Select *Original Configuration*, and then restart your computer. Go back to *My Computer•Properties• Hardware Profiles*, select *Test Configuration*, and click *Delete*.

10. Crush corruption. Try reinstalling Windows 95 to a new directory. If the new installation lacks the old problems, your original configuration probably had one or more corrupt files. If your PC still does not shut down properly, and you have a Plug and Play BIOS, try installing Windows again with the command line **setup /p l** to overlook Plug and Play. If this succeeds, you may have a defective BIOS.

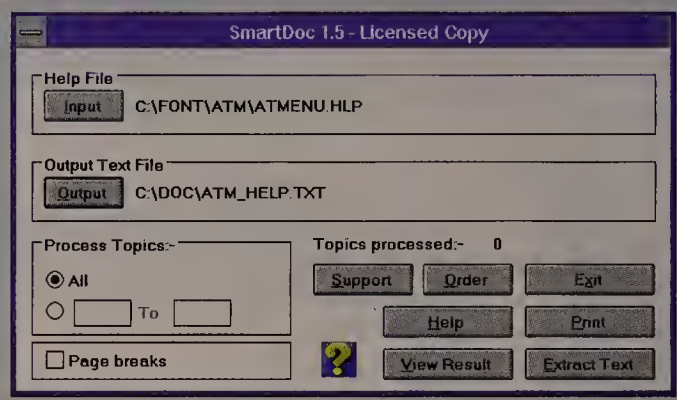
11. Boot it out. Check out the last line of the bootlog.txt file. (This file could be in your root directory or in the Windows folder; make sure you view the most recent one.) This could tell you the last thing Windows successfully terminated as part of its shutdown process. If it ends with 'EndTerminate= KERNEL', shutdown was normal. Otherwise, the last item on a 'terminate=' line may clue you in to a possible source of the problem, to wit: Query Drivers (a memory manager like QEMM), Unload Network (real-mode network drivers in config.sys), Reset Display (video driver), RIT (sound card or old mouse driver), or Win32 (some 32-bit program like Microsoft Visual C for Windows).

12. Seek a higher power. If none of these tactics bears fruit, you may have a hardware problem or need to change your CMOS settings back to their factory defaults. In either case, you're best advised to talk to your system manufacturer. To tinker with your CMOS on your own (not for the faint of heart), write down all the current settings before doing so, and see "Put BIOS in Its Place" in February's *Hardware Tips*.

WINDOWS TOOLBOX

Find Help in Print

DO YOU WISH you could print out an entire Windows Help file instead of just one topic at a time? It's a snap with SmartDoc, which works with Windows 95 and 3.*x*. Just download the file smtdoc.zip from PC World Online.



BRING BACK THE DOS ICON

IF YOU ACCIDENTALLY delete a program icon in Windows 3.*x*, you know exactly what you need to do: Choose *File•New*, select *Program Item*, click *OK*, type in the program ▶

Simply OUTSTANDING

Created in CorelDRAW by Antonio De Leo, Italy

COREL DRAW™ 7

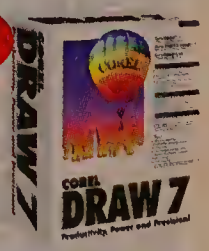
Power, Productivity and Precision!

Exceed the boundaries of traditional design with CorelDRAW™ 7. Created for the professional illustrator, graphic artist and desktop publisher, CorelDRAW 7 includes Corel PHOTO-PAINT™ 7 for photo editing and bitmap creation and CorelDREAM 3D 7 for 3D modeling and rendering. Optimum performance is top priority with faster open, save and redraw across all applications. Interactive tools and utilities give you on-screen feedback, making the design process more intuitive. Explore your creative potential with CorelDRAW 7 and attain the impossible!

Also included:

- **Eight powerful utilities**
- **32,000 clipart images and symbols**
- **1,000 photos**
- **1,000 TrueType® and Type 1 fonts**
- **Over 450 CorelDRAW™ templates**
- **250 3D models**

$249.99* Upgrade from CorelDRAW 3,4,5 or 6



Circle 93 on reader service card

Corel, Official World Title Sponsor of the COREL WTA TOUR

Official Worldwide Sponsor of Bobsleigh

OfficeMax® Taking Your Savings To The Max!™ 1-800-788-8080

COMPUTER CITY® SUPERCENTER

S3 electronics boutique®

EGGHEAD® All you need to know. 1-800-EGGHEAD

BEST BUY®

COMPUSA® THE COMPUTER SUPERSTORE 1-800-COMPUSA

*Suggested list price plus applicable taxes in US$. Dealer may sell for less. Prices may vary from location to location.

http://www.corel.com

Call now for faxed literature!
1-613-728-0826 ext. 3080
Document # 1085

KUR-0335-US

Corel, CorelDRAW and Corel PHOTO-PAINT are either trademarks or registered trademarks of Corel Corporation in Canada, the United States and/or other countries.
All other product and company names are trademarks or registered trademarks of their respective companies.

name for Description and the proper .exe file (and its path if necessary) for Command Line. Then click *OK*.

But what do you do if the deleted icon is your DOS prompt? Simple: Just follow the steps above, typing **dosprmpt.pif** (or **command.com**) for Command Line.

In Windows 95, right-click the *Start* button and choose *Open* or *Explore*. Open the Programs folder, right-click in an empty area and then choose *New•Shortcut*. Type **command.com**, then click *Next* and *Finish*.

GIVE PROGRAM MANAGER'S ICON A FACELIFT

GROWING JUST A wee bit tired of that same old Program Manager icon? If so, it's a snap to fix—and you can change Program Manager's name while you're at it.

Just open your StartUp group in Program Manager and choose *File•New*. Make sure *Program Item* is selected and click *OK* to open the Program Item Properties dialog box. For Description, type the name you want to use for Program Manager. For Command Line, type the path to the Program Manager application, usually **c:\windows\progman.exe** (your path may differ). Skip the Working Directory option; it's not necessary.

If you want to be able to switch to Program Manager by using keystrokes, click in the Shortcut Key box and press the key combination you want. Then click *Change Icon* and select a new icon. If you don't see one you like, click *Browse*, specify a new file that contains icons (such as moricons.dll in your Windows directory) and click *OK*. When you've selected a new icon, click *OK*, then click *OK* again to close the Program Properties dialog box.

To see the change immediately, double-click your new icon in your StartUp group (see **FIGURE 3**). The changes will stay in effect as long as you leave the icon there; to undo changes, move the icon to another group or delete it and restart Windows.

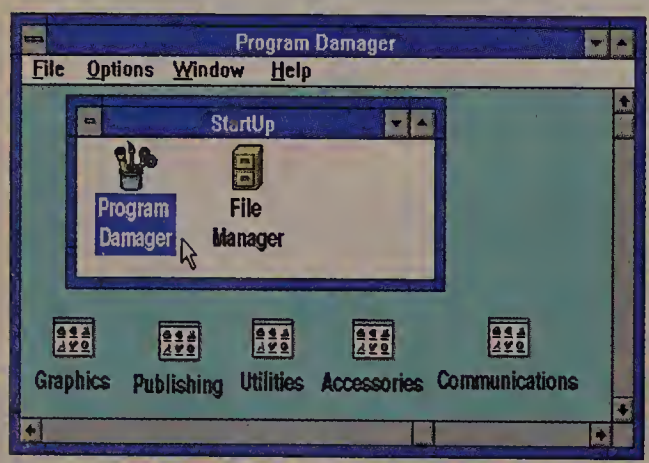


FIGURE 3: YOU CAN CUSTOMIZE Program Manager's name and Icon in about a minute.

KILL THE PASSWORD PROMPT IN WINDOWS NT

EVERY TIME YOU boot to Windows NT you need to press **<Ctrl>-<Alt>-<Delete>** and type in your password. If this seems to be an unnecessary bother, there is a way to kill the password prompt and make NT log you in automatically—with a few simple changes to the Registry.

It's simple, but not risk-free. Because messing with the Registry can have dire consequences, make sure you have the NT emergency repair disk you created when you installed Windows NT; it can repair problems with the Registry if you goof up. If you don't have an emergency repair disk, create one before proceeding: Choose *File•Run* in Program Manager or File Manager (Windows NT 3.51) or *Start•Run* (Windows NT 4.0), type **rdisk** and press **<Enter>**.

Now for the real fun. In File Manager or Program Manager, choose *File•Run* (version 3.51) or *Start•Run* (version 4.0) and type **regedt32.exe** and press **<Enter>**. Click the title bar of the HKEY_LOCAL_MACHINE window to bring it to the front. In that window, navigate to Software\Microsoft\Windows NT\CurrentVersion\Winlogon. With the Winlogon key selected (it looks like a folder), make sure the DefaultDomainName and the DefaultUserName entries are those you normally use when you log on. Choose *Edit•Add Value*. For Value Name, type **DefaultPassword**. Make sure *REG_SZ* is selected in the *Data Type* drop-down list and click *OK*. In the String Editor dialog box, type your password and click *OK*. Next, double-click the entry for *AutoAdminLogon*, change the 0 to a 1 and click *OK*. If you don't see an entry for AutoAdminLogon, add one like this: choose *Edit•Add Value*. Type **AutoAdminLogon**. As before, make sure *REG_SZ* is selected in the *Data Type* drop-down list and click *OK*. For String, type **1** and click *OK*. Finally, choose *Registry•Exit*.

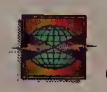
The next time you log on to Windows NT, your password will be processed automatically. But remember that now anyone can use your machine, and your password is emblazoned in the Registry Editor for any savvy user to read.

Lost in the Log-On

I RECENTLY USED the Policy Editor to restrict rights for other users who work on my computer. Everything worked perfectly until I needed to reverse the process and change back to a single-user log-on. Now every time I log on, I get an error message stating, 'The following error occurred while loading the device VNETSUP Error 6101: The string specified by the WORKGROUP keyword in the registry was not found'. When I click *OK*, my computer continues to load without any problems. What's going on?

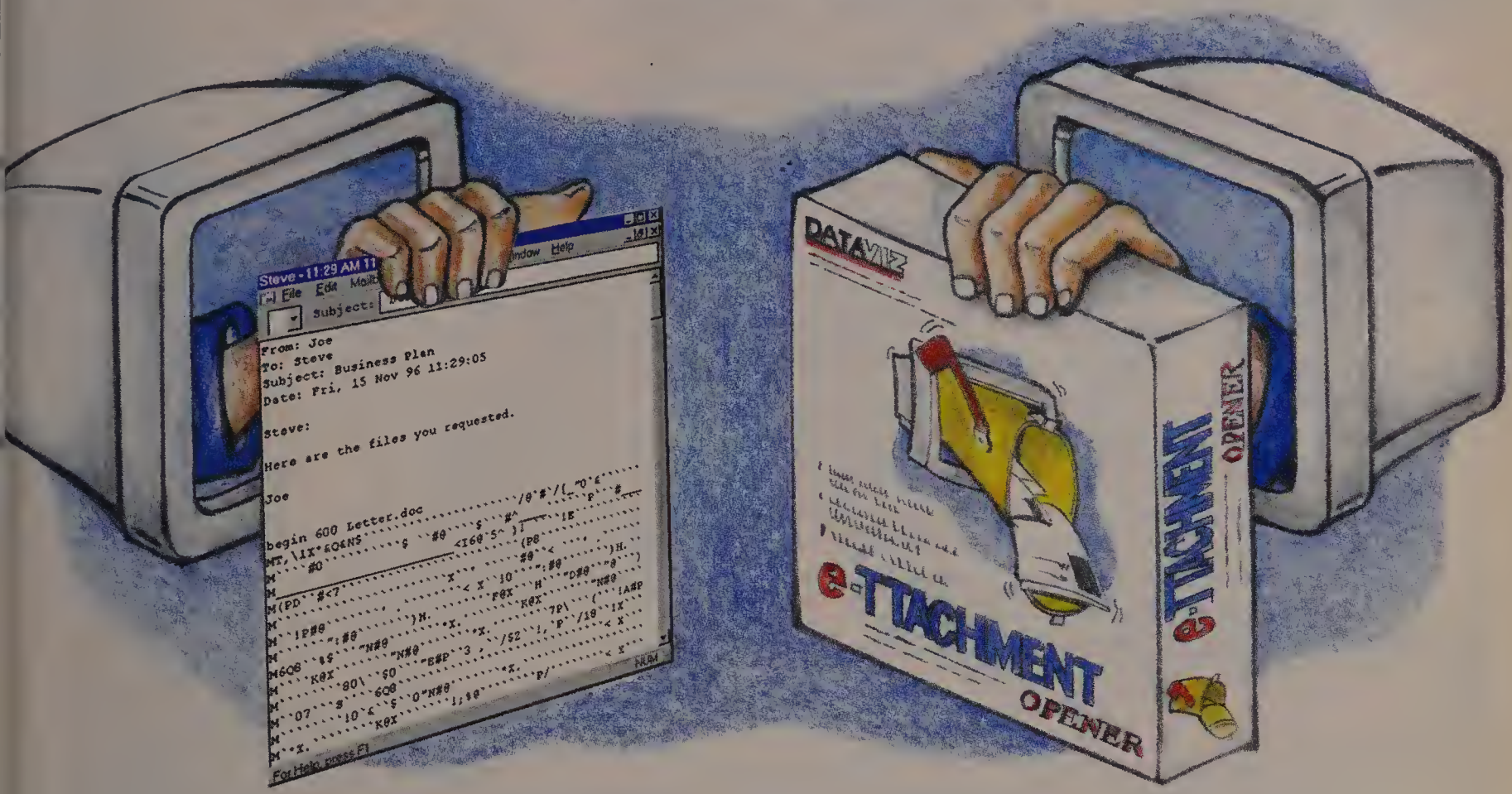
Richard Dykes, Internet

APPARENTLY YOU LOST TRACK of your computer name or workgroup when you switched configurations. This can be a problem in Windows 95 and Windows for Workgroups 3.11. To fix the problem in Windows 95, choose *Start•Settings•Control Panel*. Double-click the *Network* icon. Click the *Identification* tab and make sure the computer name and workgroup are entered correctly. If you ever see that error message in Windows for Workgroups 3.11, it means that similar entries are missing or are incorrect in the system.ini file. Open system.ini in a text editor such as Notepad, and look for the [Network] section. Make sure that the correct names are found to the right of the = sign on the lines that begin Workgroup=, ComputerName=, and UserName=. Make any necessary corrections, then save and exit system.ini.



Find files from this article and additional tips at http://www.pcworld.com/hereshow.html. Windows Tips *welcomes your questions and tips and pays $50 for published items. Contributing Editor Scott Dunn is a principal author of* The PC Bible, 2nd Edition *(Peachpit Press, 1995, 800/283-9444).* *See page 12 for contact information.* ■

Problems Receiving E-Mail Attachments?



PROBLEM **SOLUTION**

Are you reluctant to have people send you files over e-mail because you have this problem?

Well, you're not alone. If you have trouble receiving e-mail file attachments, **e-ttachment Opener™** is your solution. **e-ttachment Opener** will decipher and decode any e-mail message you receive, regardless of your mail package. It allows you to open, view, print, decompress and save the files.

Retrieve files from garbage text

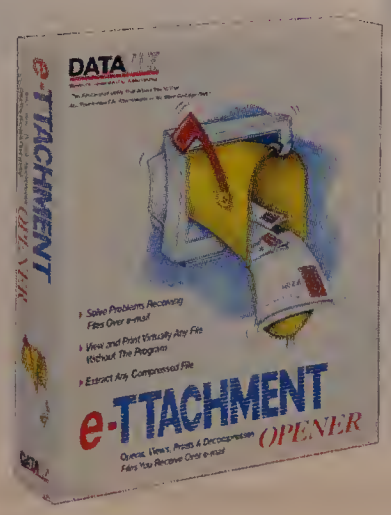
If you have ever received an e-mail message where the attached files appear as garbage text at the end of the message, **e-ttachment Opener** will extract the files and save them for you.

View virtually any file

With **e-ttachment Opener** you can get a quick view of word processing, spreadsheet, database and graphic files - even if you don't have the program that originally created the file.

Opens any e-mail attachment

Sometimes you receive a file via e-mail and cannot use it in your program. **e-ttachment Opener** will determine the format of the file and allow you to view, print and open the file.



Easily decompress files

Often times, files you download from the Internet or receive via e-mail are compressed to save space. **e-ttachment Opener** will decompress files with a simple double click of the mouse.

e-ttachment Opener runs on Windows 95 and Windows NT 4.0.

For more information call
(800) 270-0030 x121
or visit our web site at:
www.dataviz.com

You can purchase **e-ttachment Opener** at your favorite retail location for under $40

Circle 81 on reader service card

DATAVIZ®
Makers of MacOpener® & Conversions Plus®

Looking Up to the Left in Any Spreadsheet

I KEEP MY CLASS ROSTER in Excel, and I was trying to figure out a formula to display the name of the student with the highest average for a series of weekly quizzes. I tried the vlookup function, but found that it can only look up an item located to the right of the reference column. Finally, I came up with the following:

=index(A2:A7,match(max(E2:E7),E2:E7,0))

What do you think?

Barry W. Spadea, Riverside, Rhode Island

C9 =INDEX(A2:A7,MATCH(MAX(E2:E7),E2:E7,0))

	A	B	C	D	E	F	G
1	Name	Week 1	Week 2	Week 3	Average		
2	Traynor	57	41	61	53.00		
3	Stengel	99	29	71	66.33		
4	Hooper	26	35	63	41.33		
5	Huggins	12	97	7	38.67		
6	Robinson	0	31	89	40.00		
7	Snider	36	83	12	43.67		
8							
9	Highest Average:		Stengel				
10							

FIGURE 1: EXCEL'S INDEX FUNCTION, along with its max and match functions, returns the name of the person with the highest average.

NICELY DONE! The max function finds the largest average, match finds its position in the list of averages, and index returns the name from the corresponding position in column A, as in **FIGURE 1**. A similar formula works in 1-2-3 version 5.0:

@index(A2..A7,0,@match(@max(E2..E7), E2..E7,0))

Quattro Pro lacks a match function, but you can use its lookup function instead:

@array(@lookup(@max(E2..E7),E2..E7, A2..A7))

SORT A LIST IN EXCEL

WHILE WE'RE ON the subject of fancy formulas, check out this pair of array formulas (in columns B and C in **FIGURE 2**) that sorts a list of numbers (in column A) in ascending or descending order, without need for the sort command.

To enter the descending sort formula, select B2:B7, type **=large(A2:A7,(row (A2:A7)-row(A2)+1))** into cell B2, and press **<Ctrl>-<Shift>-<Enter>**. Enter the ascending formula, **=small(A2:A7,(row(A2:A7)-row(A2)+1))**, in cell C2, then press **<Ctrl>-<Shift>-<Enter>**.

B2 {=LARGE(A2:A7,(ROW(A2:A7)-ROW(A2)+1))}

	A	B	C	D	E	F
1	List	Descending Sort	Ascending Sort			
2	21	88	10			
3	71	71	13			
4	10	30	21			
5	13	21	30			
6	30	13	71			
7	88	10	88			

FIGURE 2: SORT A LIST OF NUMBERS IN EXCEL without using the sort command.

To understand how this works, consider that the expression row (A2:A7) yields an array that consists of the row numbers of the list items: {2,3,4,5,6,7}. Subtract the row number of the first item, add one, and you have an ordinal list: {1,2,3,4,5,6}. The formula uses this list with the large function to return the first largest item, the second largest, and so on.

ADD FANCY FLAGS

HAVE YOU EVER wanted to flag the high values in a report with a smiley face and the low ones with a frowning face? Not your style? Or just never thought it was possible? Well, check out this tip from Bryan Sherman of Cincinnati.

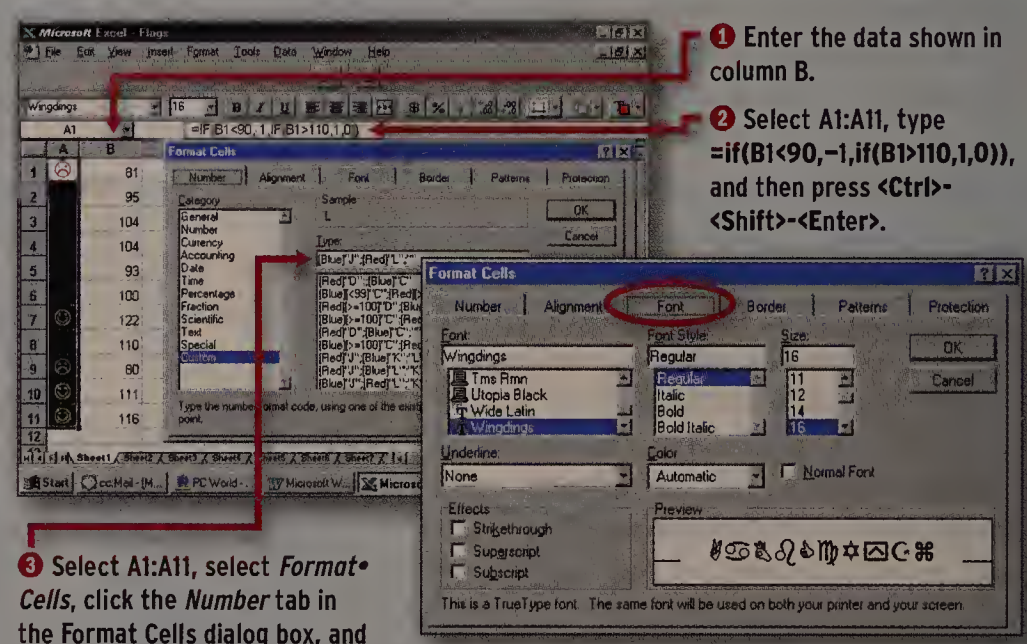
Bryan employs an "if" formula to display '-1' whenever the corresponding value in column B is below 90, '1' when it's greater than 100, and '0' otherwise. Then a custom number format for column A displays a blue 'J' for positive numbers, a red 'L' for negatives, and nothing at all for zeros. Finally, he specifies Wingdings as the font for column A (see **STEP BY STEP**).

In Quattro Pro use **@if(B1<90,-1,@if(B1>110,1,0))**. To set the format, select A1..A11, select *Format•Block*, click the *Numeric Format* tab, select *User defined*, and in the Formats defined box, enter **N'J';N'';N'L'**. Click the *Font* tab, select *Wingdings*, specify *16* in the Point Size box, and click *OK*.

Find more tips at http://www.pcworld.com/hereshow/. Spreadsheets *welcomes your input and pays $50 for published items. Contributing Editor Richard Scoville is a software training consultant in Chapel Hill, North Carolina.* *See page 12 for contact information.* ■

STEP BY STEP

Flag High and Low Values in Excel and Quattro Pro



1. Enter the data shown in column B.
2. Select A1:A11, type **=if(B1<90,-1,if(B1>110,1,0))**, and then press **<Ctrl>-<Shift>-<Enter>**.
3. Select A1:A11, select *Format•Cells*, click the *Number* tab in the Format Cells dialog box, and in the Category list select *Custom*. In the Type box that appears, enter the formula **[Blue]"J";[Red]"L";""**.
4. In the same Format Cells dialog box, click the *Font* tab, select *Wingdings* in the Font list, choose *16* in the Size list, and click *OK*.

Extraordinary Price.

"When we were in the market for 17" monitors, we checked out all the options and chose the Optiquest V773. Why? Because it's a name we could trust with all the performance and features we needed-at a price we could afford."

The Optiquest V773 is an extraordinary 17" (15.8" viewable) monitor ideal for advanced graphics and desktop publishing, as well as spreadsheets and other Windows® applications. Superior features add to this monitor's versatility and value. This includes a fine dot pitch, high refresh rates, intuitive OnView® control system, ARAG® screen treatment and Super Contrast screen. These features combine to provide rich, vibrant colors along with razor sharp text and images perfect for both PC and Mac® systems.

Model	CRT size/ Viewable	Dot Pitch	Max Resolution	Optimal Res/ Refresh	Plug & Play+
V773	17"/15.8"	.026mm	1280x1024	1024x768/85Hz	Yes
V775	17"/16.0"	.026mm	1600x1280	1280x1024/79Hz	Yes

PC MAGAZINE EDITORS' CHOICE™

Optiquest V775
September 1996

Now for more great news! This monitor is available to you for **under $600** (ESP). From large corporate to home office environments, the Optiquest V773 is the ideal monitor to upgrade your old system or combine with your new one. Call **800-888-8583**, ask for agent 7417 for the name of the dealer near you.

All business decisions should be this easy!

OPTIQUEST®
Value Line Monitors by **ViewSonic®**

20480 Business Parkway, Walnut, CA 91789
(800) 888-8583 • (909) 869-7976
FaxSonic (909) 869-7318 (24-hour fax-on-demand)
Internet: www.viewsonic.com

Corporate names and trademarks stated herein are property of their respective companies.
Specifications subject to change without notice.
© ViewSonic Corporation,1997. All rights reserved

Circle 247 on reader service card

Reformat documents ◆ Format Word line numbers ◆ Display WordPerfect comments

Reformatting the Easy Way

IT HAPPENS ALL THE TIME: You've finished a long document, complete with formatting such as italics for your company name throughout or special indentation on some paragraphs. Now the boss shows up and wants those italics changed to boldface and the indentation altered. You could do it manually, but Word, WordPerfect, and Word Pro all offer an easier way. The technique can apply first-time multiple formatting, as well.

STEP BY STEP shows how to make this tedious job relatively painless in the current versions of Word and WordPerfect.

Word 6.0 and 7.0

1. Highlight some text you want to reformat. If you select an entire paragraph, all the formatting in that paragraph, including indentations, will be copied. Make your formatting changes, and leave the text highlighted.
2. Double-click the *Format Painter* button on the main toolbar. This turns on the Format Painter function and makes it persistent so you can reformat several items. (If you single-click the icon, you'll have to reclick it each time you want to apply the formatting.) Your mouse pointer will look like a paintbrush.
3. Scroll through the document to locate other text that needs the same formatting, then click and drag the mouse over the text. When you release the mouse button, the formatting will be changed.

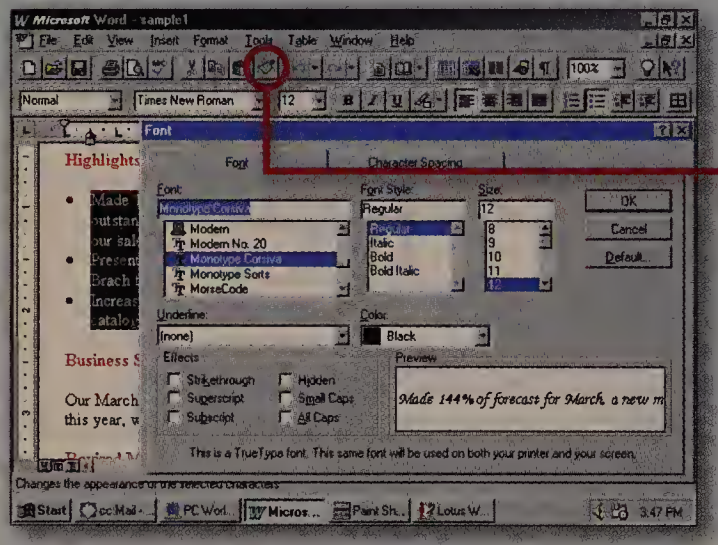
Hint: You can use this technique to *apply* formatting as well. Double-click to paint a word, triple-click to paint a paragraph, or **<Ctrl>**-click to paint a sentence. Then double-click the *Format Painter* button. If you selected an entire paragraph in step 1, you can apply the formatting just by clicking anywhere in that paragraph. Repeat as needed, then click the *Format Painter* button again to disable the function.

WordPerfect 6.1 and 7

1. Highlight some text you want to reformat. Make the formatting changes, and leave the text highlighted.
2. Click the *QuickFormat* icon on the ▶

STEP BY STEP

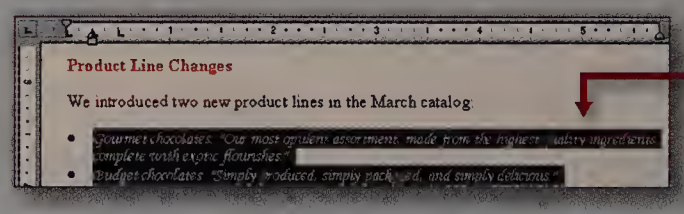
Copy Formatting From One Text Block to the Next in Word and WordPerfect



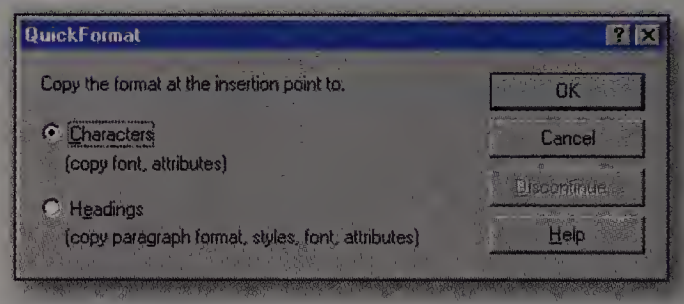
Word 6 and 7

◀ ❶ Highlight a passage of text you want to reformat, make the formatting changes, and leave the text highlighted.

❷ Double-click the *Format Painter* button on the toolbar.

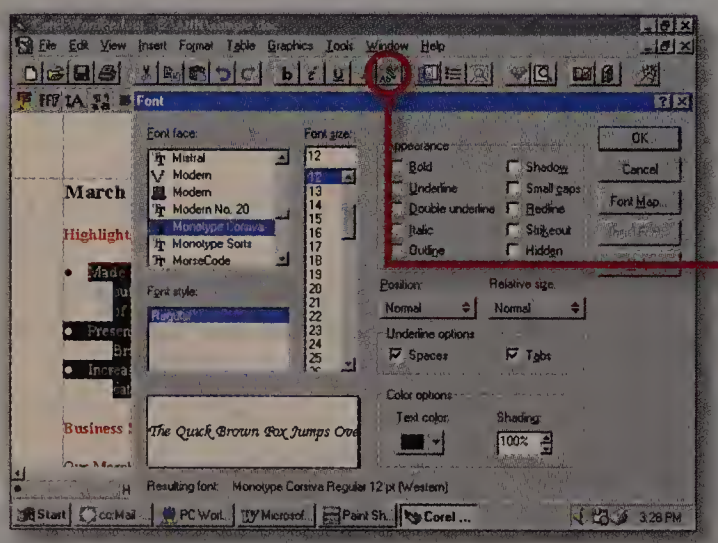


❸ Locate another passage of text that needs the same formatting, then click and drag the mouse over this text.



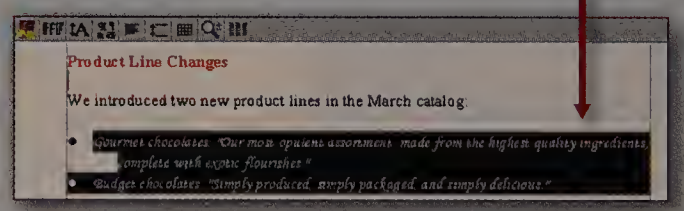
◀ ❸ Select the *Characters* button to apply your new fonts. Select *Headings* to copy all the formatting in a paragraph.

WordPerfect 6.1 and 7



◀ ❶ Highlight some text you want to reformat, make the changes, and leave the text highlighted.

❷ Click the *QuickFormat* button on the toolbar.



❹ If you chose Characters, locate other text that needs the same formatting, then click and drag the mouse over it. For Headings, click anywhere in the paragraph with the paint roller tool.

THE FIRST DESKTOP UPS

Finally, there's a UPS that belongs on TOP of your desk and not by your feet.

MINUTEMAN's new Pro Series packs a host of new features and unprecedented power protection in a tiny, ergonomic package, plus an unmatched three year-warranty.

Good looks may go a long way for some desktop products, but the Pro Series has so much more to offer PCs, servers, networks, and even telecommunications equipment:

- **Full protection from spikes and surges**
- **Battery backup during blackouts**
- **FAX/modem/data line protection**
- **Available with power management software (280 VA and above)**
- **Hot-swappable batteries**
- **Automatic battery management**
- **Intelligent microprocessor**
- **SNMP-ready (280 VA and above)**
- **Models range from 200 VA to 1400 VA**

Minuteman is the first company to offer you a smart UPS with automatic voltage regulation for under $100.

Call us to find out more about MINUTEMAN's New Pro Series, and see why we say its the first UPS to reach the desktop.

MINUTEMAN®
UNINTERRUPTIBLE POWER SUPPLIES

800-238-7272
www.minuteman-ups.com

MINUTEMAN UPS • 1455 LeMay Drive • Carrollton, TX 75007 • Phone: (972) 446-7363 • Fax: (972) 446-9011 • 24 Hour Info by Fax (800) 263-3933

Circle 168 on reader service card

main toolbar (top center of screen).
3. In the QuickFormat dialog box, select *Characters* to apply only character formatting, such as fonts and italics, or *Headings* to copy all formatting for a paragraph, including indentations. Click *OK*. Your mouse pointer will turn into a paintbrush if you selected Characters, or a paint roller if you selected Headings.
4. If you chose Characters, scroll through the document to locate other text that needs the same formatting, then click and drag the mouse over that text. When you release the mouse button, the formatting will match your previous selection. If you chose Headings, just click anywhere in the paragraph with the pointer, and the formatting will change.

Repeat steps 3 and 4 as needed, then click the *QuickFormat* icon again to disable the function.

Hint: You can use these techniques to apply formatting. Double-click to paint a word or triple-click to paint a paragraph.

Lotus Word Pro 96

1. Highlight some text you want to reformat, make the formatting changes, then click in the text to remove the higlighting. Close the InfoBox if it's open.
2. Select *Text•Fast Format*, or press **<Ctrl>-T**. In the Fast Format dialog box, select *the look of the text at the insertion point* to copy only the character formatting. Click *the paragraph's named style only (advanced)* if you just want to copy the basic style for a paragraph; it won't copy any of your text formatting. Click *OK*. The mouse pointer will turn into a paintbrush.
3. Scroll through the document to locate other text that needs the same formatting, then click and drag the mouse over the text. When you release the mouse button, the formatting will match the selection from step 2. When you're done, select *Text•Fast Format* or press **<Ctrl>-T** again to disable the function.

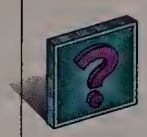
TABLE SELECTION TIPS FOR WINWORD

WHILE WORKING WITH tables in Word 6 and 7, it's easy to become confused on how to properly select text, cells, rows, and columns in the table. Save yourself some trouble by switching to Word's Normal view of your document (*View•Normal*), making sure that table gridlines are visible (select *Table•Gridlines*; the Gridlines option should be checked). Then use the shortcuts given in the table above to select any parts of a table.

Select Table Elements Quickly in Word

To select	Do this
Any amount of text	Click and drag over the text
All the text in the next cell	Press <Tab>
All the text in the previous cell	Press <Shift>-<Tab>
One cell	Click to the left of the text in that cell
One row	Click outside of the table to the left of the row
One column	Click the top gridline for that column
Multiple cells, columns, or rows	Click and drag across the desired selection
The entire table	Click inside the table, then press <Alt>-<Numpad 5> (Num Lock must be off) or select Table•Select Table

FORMAT WINWORD LINE NUMBERS



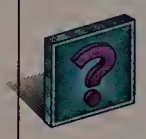
IS THERE A WAY to get WinWord 6.0 to use a different font and size for line numbers? When I turn on line numbering in the Page Setup dialog box, these numbers use the same font and size as the default for document text. But once they're turned on, I can't select the line numbers to change their font or size.

Leon A. Goldstein, Fayetteville, North Carolina

BY DEFAULT, Word for Windows assigns line numbers the character format of the Normal paragraph style. You can change their font, but the technique isn't obvious. Here's what to do in Word 6.0 and 7.0:
1. In a new document, turn on line numbering by selecting *File•Page Setup*, clicking the *Layout* tab in the Page Setup dialog box, clicking the *Line Numbers* button, and selecting the *Add Line Numbering* check box in the Line Numbers dialog box. Click *OK* twice.
2. Select *Format•Style*. In the Style dialog box, select *Line Number* in the Styles list, then select *All Styles* in the List box. Click the *Modify* button.
3. In the Modify Style dialog box, click the *Format* drop-down list and select *Font*. In the Font dialog box, change the settings to the font and size you prefer for your line numbers, then click *OK*.
4. Back in the Modify Style dialog box, click the *Add to Template* check box, then click *OK* to save these changes as your new line number default settings. If you want these changes to apply only to the current document, just click *OK*. In either case, click *Close* in the Style dialog box.

Enter a few lines in your new document, then select *View•Page Layout* and you'll see the newly formatted line numbers. Just scroll to the left if the line numbers aren't visible.

DISPLAY MISSING WORDPERFECT COMMENTS



WHILE WORKING ON a document in WordPerfect 6.1, I inserted a comment by using the Insert•Comment command. When I clicked Close in the Comment editing window, however, the comment was nowhere to be seen. There is supposed to be a little balloon on the screen. When you click on it, the comment should appear in a larger balloon.

I selected Edit•Preferences•Display and saw that the Comments option was checked. But when I returned to the document window, the comment balloon wasn't there. I need this feature badly. What am I missing?

Marian Barnes, Houston, Texas

THE SAME THING happened to me, and I was at a loss to understand it until I played with the Zoom command in the View menu and discovered that those comment balloons won't show up under Zoom settings that don't display the page margins—any setting above 89 percent.

To see your comments, select *View•Zoom*, then select *Page Width* or specify a setting below 90 percent. Or keep the Zoom setting at 100 percent and just scroll the screen to the left until you see the balloons.

Find additional tips at http://www.pcworld.com/hereshow/. Word Processing *welcomes your tips and questions and pays $50 for published items. Contributing Editor George Campbell is a contributor to* The PC Bible *(Peachpit Press, 1995, 800/283-9444).* *See page 12 for contact information.* ■

The laptop freed you from your office. Now we're about to free you from your laptop.

It's Windows® in the palm of your hand. Incredible, isn't it, the kind of mobility the new Velo gives you. Whether you're writing a brief on a plane or sending e-mail from a hotel room, it's never been easier to carry your work around.

The Velo has a built-in modem as well as Windows CE pocket versions of Word, Excel and Internet Explorer. And check this out: it even lets you record voice memos. It weighs less than a pound, but does a ton of work. Call 1-888-FOR-VELO or visit our Web site at www.velo1.com.

Let's make things better.

PHILIPS MAGNAVOX

Microsoft® Windows® CE

© 1997 Philips Electronics North America Corporation
Velo is a registered trademark of Philips Electronics. All other names are either registered trademarks or trademarks of their respective owners.

Make Exceptions to the Rule With If Functions

ONE PESKY THING about designing a database is deciding how to handle exceptions to the rules. Suppose you want to send a mailing to customers that gives them an opportunity to receive a 10 percent discount on orders they place in the next few weeks. This would be a simple project except that you have a few preferred customers to whom you would like to offer a discount of 20 percent.

There are a couple of approaches. You can design two mailing pieces from two different database reports—one that shows a 10 percent discount for regular customers and another that offers 20 percent off to preferred accounts. This solution has two drawbacks: You have to include a filter in each report that selects the right customers, and you have to maintain two reports in the database.

A better solution is to design a single report that uses an If function, which allows you to print a subset of data for each condition. In this case, it displays a discount percentage that depends on the contents of a flag field called Preferred in the Customer table.

ACCESS: EMBED AN IIF() FORMULA IN YOUR LETTER

1. ADD A YES/NO type field named **Preferred** to your Customer table. Then enter **Yes** in this field for any records for preferred customers (see **STEP BY STEP**).

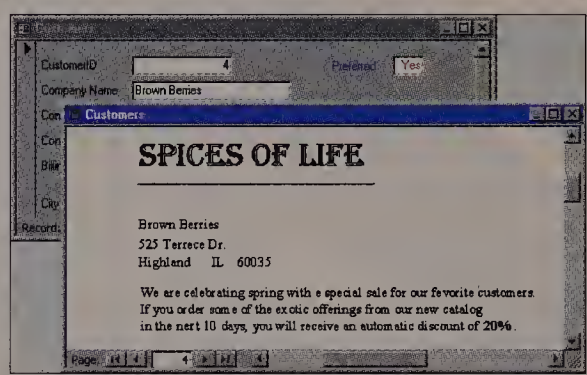
2. Design a new, blank report for the letter. You can also use the Report Wizard to create a tabular report and rearrange the fields to create the letter's heading.

3. Choose *View•Toolbox* and click the *Label* tool to add a box for the body of the letter. Then enter the letter's text.

4. Use the *Text Box* button in the Toolbox to add a control to the design to show the percentage discount. Place the text box in the Label object that contains the body of the report. Right-click the text box, choose *Properties*, click the *Data* tab, and enter **=IIf([Preferred]=Yes, "20%","10%")** on the Control Source line (see Step by Step). You can omit =Yes if you like. Access assumes that referring to a Yes/No field by name in an IIf() expression automatically tests whether the field is set to Yes.

5. Save the report and view it for preferred and nonpreferred customers.

The IIf() expression has three parts. The first part is a statement that Access evaluates to determine whether it is true or false. In our example, the IIf() expression looks for Yes in the Preferred field of a customer record. The second part, 20%, tells Access what value to display in the text box if the first expression is true. The third part, 10%, says what value should be used when the first expression is false. In this case, the first statement is false when the Preferred field is set to No.



A YES/NO FIELD with an IIf() function lets you print a report with conditional values.

APPROACH: ADD A DISCOUNT AMOUNT FIELD TO THE LETTER

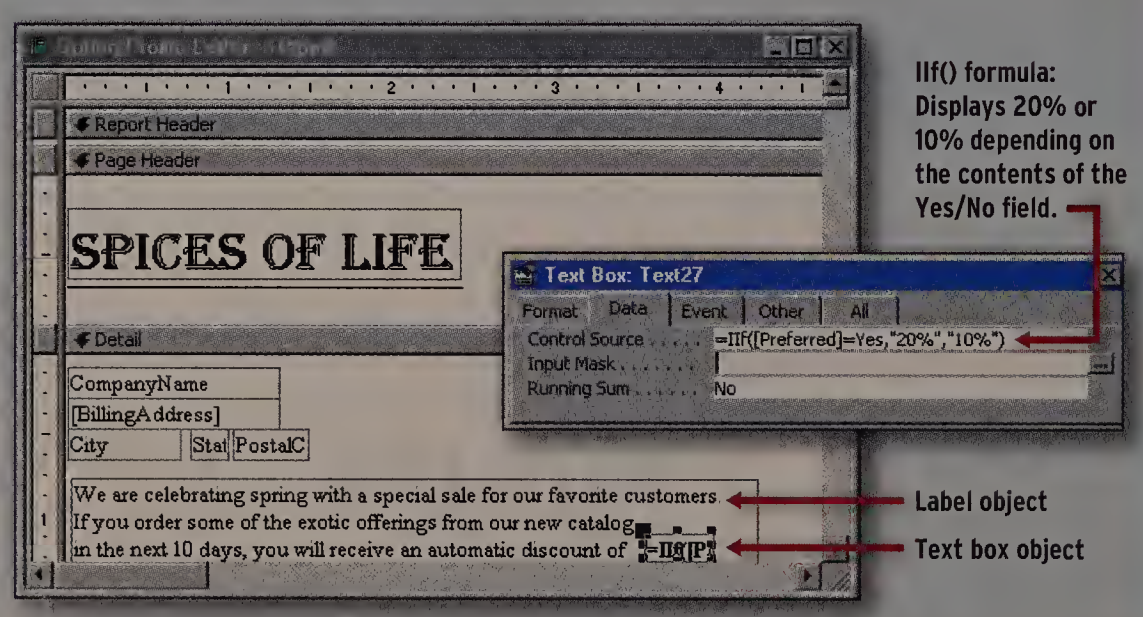
AS IN THE ACCESS EXAMPLE, you need to add a field showing whether a customer is preferred. Open your Customer file, choose *Create•Field Definition*, and add a Boolean field called **Preferred**. Also add a Calculated field called **Discount Amount**. In the Formula box, enter **If(Preferred,'20%', '10%')**, and then click *OK*. Add the **Preferred** field to the form you use to update customer records, and enter **Yes** for preferred customers.

Choose *Create•Form Letter* and step through the Form Letter Assistant. Type in the body of the letter, and enter **<<"Discount Amount">>** where you want the discount to appear. When you view the letter in Print Preview, you should see the correct discount.

Database Tips *welcomes your questions and pays $50 for published items. Contributing Editor Celeste Robinson is the coauthor of* Mastering Paradox 7 for Windows 95 *(Sybex, 1996, 800/227-2346). See page 12 for contact information.* ■

STEP BY STEP

Design One Access Report for Two Sets of Customers



Stealth is flat out faster.

Outrageously fast 2D graphics–plus 3D.

Prepare to push your PC into the next dimension with the Stealth 3D family from Diamond. The first in a superior line of affordable Plug and Play 3D accelerators with Outrageously Fast 2D graphics, vivid 3D animation and striking MPEG video playback—from the market leader in high-performance graphics subsystems. The Stealth 3D 2000 and 3000 dramatically improve graphic-intensive business applications, action games and overall system performance through greater resolution, millions of colors and extreme speeds. ◆ The Stealth 3D family accelerates Windows® 95, Windows® NT 3.51 and 4.0, Windows® 3.1 and DOS operating systems and is compatible with 3D applications for Windows 95 using Microsoft's® DirectX APIs. The Stealth 3D 2000XL* comes bundled with Interplay's Descent™ II**, Compton's Interactive Encyclopedia™ 1996, Sony's Destruction Derby™ and Microsoft's® Internet Explorer. The Stealth 3D 3000, with support of up to 4MB VRAM, delivers enhanced resolutions and colors, OpenGL support and higher refresh rates. The Stealth 3D 3000XL* comes bundled with Interplay's Descent™ II; Compton's Interactive Encyclopedia™ 1996; Asymetrix's 3D F/X™ and Digital Video Producer™ and Microsoft's® Internet Explorer. ◆ So, if you're ready for the fastest graphics available, contact Diamond at http://www.diamondmm.com or call us at 1-800-4-MULTIMEDIA, and get everything you need to launch into the future of 3D graphics acceleration today.

	Stealth 3D 2000XL	Stealth 3D 3000XL
Memory	DRAM	VRAM
RAMDAC	135 MHz	220 MHz
Max Memory	4MB	4MB
Max Resolution	1280 x 1024	1600 x 1200
Bundled Software*	• Descent II • Compton's Interactive Encyclopedia 1996 • Destruction Derby • MS® Internet Explorer	• Descent II • Compton's Interactive Encyclopedia 1996 • 3D F/X • Digital Video Producer • MS® Internet Explorer

WinBench® 97 Comparison in 24-bit Color Mode

*Measured in WinMarks™

DIAMOND Stealth 3D 2000	57.5
MATROX MGA Millenium™	53.6
MATROX Mystique™	52.8
STB LightSpeed™ 128	50.5
ATI 3D Xpression™	45.4

3D Hardware Features Comparison

	Stealth 3D	MATROX Millennium
Gouraud Shading	◆	◆
Perspective Correction	◆	
Alpha Blending	◆	
Mip Mapping	◆	
Bilinear Filtering	◆	
Z-Buffering	◆	◆

DIAMOND Stealth 3D ACCELERATED

S3d On board

Look for these logos on a new class of applications designed to take advantage of Stealth 3D graphics.

PC MAGAZINE EDITORS' CHOICE

December 3, 1996

DIAMOND MULTIMEDIA
VISUAL SYSTEMS DIVISION

http://www.diamondmm.com

©1995 Diamond Multimedia Systems, Inc., 2880 Junction Avenue, San Jose, CA 95134-1922. Windows® is a registered trademark of Microsoft Corporation. All other trademarks and registered trademarks are the property of their respective holders. *Software bundles included with XL retail version only. **Descent II Destination QuartZone is a trademark of Interplay. Winmark 97 and Winstone 97 tests performed at 800 x 600 resolution in 24 bit color by ZD Labs in the December 3, 1996 issue of PC Magazine

Circle 60 on reader service card

Download Web pages ◆ Find spammers' addresses ◆ Get financial news from the Web

Save That Web Page

IS THERE A WAY to save Web pages so that all their graphics and buttons are intact?

Todd Scott, South Boston, Virginia

TRY WEBWHACKER from The ForeFront Group. WebWhacker grabs entire sites, complete with links, graphics, Java applets, sound clips, and video clips, and lets you go back to them offline.

• WebWhacker 2.0 $49.95 list, trial version free from Web site, The ForeFront Group, 800/653-4933, http://www.ffg.com/whacker.html.

READER SERVICE NO. 729

FIND THE E-MAIL ADDRESS BEHIND THE SPAM

SEVERAL READERS HAVE suggested devious plans to wreak revenge upon hucksters who fill their e-mail boxes with *spam*, mass-mailed advertisements for such junk as pyramid schemes or home tanning beds. Not surprisingly, we can't print most of these suggestions.

The annoying reality is that most of these sales pitches include e-mail aliases in the header, which can make it difficult to track down the sender's identity. But one worthwhile idea is trying a $25 shareware utility called NetScan Tools from Northwest Performance Software. NetScan can sleuth out the e-mail address of the spammer's Internet service, to which you can then complain.

Of course, you need to be a sophisticated enough Netizen to know what information to feed NetScan, then translate the mumbo-jumbo it gives you. For example, if you look at the 'Received: from' line in the header of the spam message, you may see the domain name and IP address of the computer from which the message originated. The domain name might be bogus, but the IP address could still be real. If you type the IP address into NetScan Tools, it can scan the Net and find the real domain name for the spammer's address. You can then write the postmaster at this address and inform them that someone at their site is spamming. But make sure that you write the postmaster politely, because even an IP address can be forged.

NetScan has other uses, such as determining the IP address of your Internet link and testing your socket connection to find out what breed of Winsock is loaded at any given time. It also includes Ping, which tells you whether you can reach a ▶

Online Sources Teach You To Invest

Can't wait for Lou and his elves on *Wall Street Week in Review* to get advice about investing, or for tomorrow's newspaper to get the latest stock quotes? Here are 12 sites that you can call on anytime for a financial fix.

Site	Description
American Association of Individual Investors (http://www.aaii.org/)	The club devoted to teaching members how to invest wisely.
CNN Financial Network (http://www.cnnfn.com/)	Financial headlines, market indexes, 15-minute delayed stock quotes, interesting money-related feature stories.
Douglas Gerlach's Invest-O-Rama (http://www.investorama.com/)	Online brokerage with trading simulation game that helps you learn how to invest.
E-trade (http://www.etrade.com/)	Terrific source of information and tutorials for the novice investor, database of dividend reinvestment and direct purchase stock programs, articles, links to other financial sites.
Fortune Magazine (http://pathfinder.com/@@ODQrWwUArCORzCCM/fortune/)	The latest issue of *Fortune*, plus archives of back issues.
Kiplinger Online (http://kiplinger.com/)	News, personal finance features, stock quotes, retirement advice.
Money Magazine Online (http://pathfinder.com/@@ODQrWwUArCORzCCM/money/)	Features and advice on personal finances.
The Motley Fool (http://www.fool.com/)	Web site for the irreverent investment forum on America Online that everyone in the financial world is talking about.
NETworth (http://networth.galt.com/)	Morningstar mutual fund reports, fund searching, stock quotes.
SEC Online (http://www.sec.gov/)	EDGAR database with full text of public company filings and 10-K reports, made available within 24 hours of filing.
StockMaster (http://www.stockmaster.com/)	Stock and mutual fund quotes, historical charts.
The Syndicate (http://www.moneypages.com/syndicate/)	Bill Rini's links to over 1000 financial pages around the world.

CNN'S FINANCIAL NETWORK Web site provides you with the latest news and stock quotes from Wall Street, plus lots of money-related feature stories.

Shockwave™ and Capitol Records Produce Another Smash Hit.

a truly compelling interface that takes advantage of Shockwave's streaming audio from SoundEdit™ 16 *plus* DECK II™. Macromedia xRes™ helps us edit high-resolution images, and Extreme 3D™, takes us to another level in 3D. We'll continue to use Director and Shockwave in the future, and soon we'll have entire CDs right on our site."

because of its superior sound quality. With it, we breathe new life into both old and new hits on our virtual jukebox. By using Director, we get the flexibility to create

Capitol Records' Robin Bechtel on the Director® Multimedia Studio™ with Shockwave™: "We chose Shockwave

Now with streaming audio, Shockwave™ is producing hit after hit on the World Wide Web. Take this virtual jukebox at Capitol Records, created with the Director® Multimedia Studio™ entirely for Shockwave. "We use Macromedia because they're dedicated to pushing technology to the limit," said Robin Bechtel, senior director of new media at Capitol. "With Shockwave, we're at the forefront of a new frontier in multimedia and Web audio. As a medium to get music to the masses, it's the best thing going." But don't just take her word for it. First, see and hear for yourself by getting Shockwave free at our Web site, where you'll also find a link to Capitol Records. Then give us a call today. And you'll become a multimedia sensation overnight.

Call 1.888.200.5681
for a FREE Showcase™ CD* and the name of a reseller near you.

MACROMEDIA®
Tools to Power Your Ideas.™

Director Multimedia Studio includes Director 5, SoundEdit™ 16 *plus* DECK II™ (or Sound Forge XP for Windows), Macromedia xRes™, and Extreme 3D™. Estimated street price is $999 for Windows or Mac.

*Offer valid in the U.S. and Canada only. Outside the U.S., Canada, and Europe, call us at 1-415-252-2000 or FAX us at 1-415-626-0554. In Europe, call +44 (0)1344 458600. Macromedia, the Macromedia Logo, and Director are registered trademarks and Director Multimedia Studio, SoundEdit, DECK II, Macromedia xRes, Extreme 3D, Shockwave, Showcase, and Tools To Power Your Ideas are trademarks of Macromedia, Inc. All other brand or product names are the property of their respective owners. © 1996 Macromedia, Inc. All rights reserved

Circle 139 on reader service card

computer on the Internet; Finger, which helps you find out about the person who sent you e-mail; and Whois, which gives you the names, addresses, telephone numbers, and e-mail addresses of those who are responsible for a specified domain. NetScan is handy for those who run Internet services, but even if you don't, it's a fun toy to play with. You can download NetScan from the vendor's Web site, or look for the file nst32230.zip on PC World Online.

• NetScan Tools, $25 registration fee, Northwest Performance Software, http://www.eskimo.com/~nwps/index.html

READER SERVICE NO. 730

WILL ADSL OFFER SUPERFAST INTERNET LINKS?

I'VE HEARD OF AN Internet connection device called ADSL that is supposedly faster than an ISDN connection. What exactly is ADSL, and what do I have to do to get it?

Mary Paska, Williamson, West Virginia

WHAT A TECHNOJUNKIE you are, Mary. While you may not yet understand the new technology, you are nonetheless eager to buy it.

Asymmetric Digital Subscriber Line is the local phone companies' latest scheme for hopping onto the Internet money-making wagon. Among its appeals is that it offers speeds 12 times that of ISDN, yet it doesn't require the telephone companies to spend beaucoup bucks buying new switches and burying fiber optic phone lines, as ISDN does. ADSL also offers cleaner connections to the Internet and more bandwidth than the cable links that the telephone companies' archrivals—the cable companies—hope to sell to households.

Initially, ADSL will offer downloading speeds of 1.5 megabits per second and uploading speeds of 64 kilobits per second. Eventually, the technology will boost those speeds to 6 mbps and 640 kbps, respectively.

To use ADSL, you will need a special modem card—the few such devices that are currently available on the market cost around $1000 each. You'll also need a special phone link—it will be your same old phone line, but the phone company will put its own ADSL modem on the other end. That is estimated to cost consumers about $35 to $40 a month. And don't forget that your Internet service provider must also be equipped with ADSL.

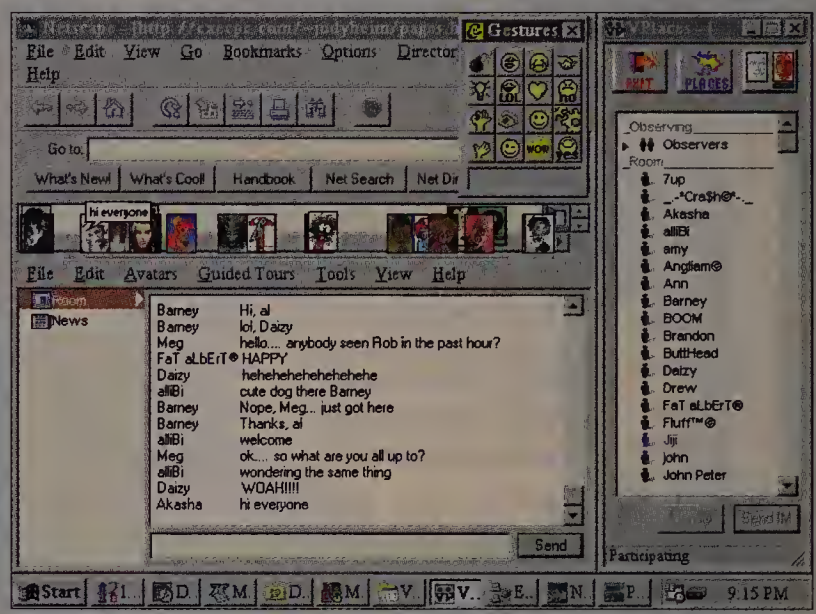
Many phone companies—Ameritech, AT&T, Bell Atlantic, Bell South, GTE, Nynex, Pacific Telesis, and U.S. West—are testing ADSL in limited areas around the country and within companies. Bell Canada, for example, has been testing ADSL with Internet services. It's hoped that ADSL lines will be available in major cities throughout the country sometime this summer.

But there are hurdles to the new technology. Standardizing ADSL modems so that they talk to the phone companies' modems is one challenge. Also, the current technology requires that your modem be within 3 miles of your phone company's modem for the ADSL connection to work.

Find files from this article and additional tips at http://www.pcworld.com/hereshow. Internet Tips *welcomes your questions and tips and pays $50 for published items. Contributing Editor Judy Heim is the author of* The Needlecrafter's Computer Companion *(No Starch Press, 1995, 800/420-7240). See page 12 for contact information.* ■

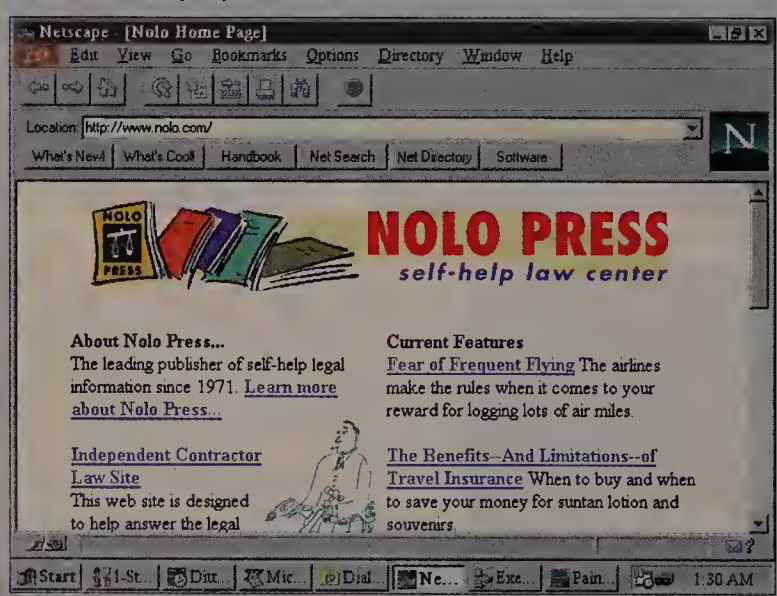
Virtual Places Brings Web Chat to Life

IN RESPONSE TO THE OCTOBER 1996 item about Web chat with animation ("Look at Me When I'm Talking to You!"), Michael Chuen of New Canaan, Connecticut, wrote that he enjoys a free program called Virtual Places. Used as a plug-in to Netscape's Navigator or Microsoft's Internet Explorer, it lets you talk to anyone on the Web through an avatar. You can choose to be a monster, a bathing beauty, or a muscle man. Dialogue appears in bubbles over others' avatars. You can mouse-click from site to site, or chat room to room around the Web. Download Virtual Places from http://www.vplaces.com/vpnet.



Legal Overdose

TIRED OF LAWYERS? Check out Nolo Press's Self-Help Law Center (http://www.nolo.com/). Nolo publishes irreverent tomes on how ordinary people can circumnavigate the legal system, avoid lawyers, and serve as their own lawyer if they must. Their site offers spicy features true to the Nolo spirit on consumer issues like frequent flying. It's also a good source for lawyer jokes.



Are you the kind of person who always wants everything your own way?

Cool!

EarthLink's Internet access now includes your Personal Start Page.

Netscape: My EarthLink Start Page

Back | Forward | Home | Reload | Images | Open | Print | Find | Stop

Netsite: http://www.earthlink.net/start/nph-bserver-v2.cgi

What's New? | What's Cool? | Destinations | Net Search | People | Software

Hi Wendy

Refer your friends and win!

Until the end of 1996, you can participate in a special referral program that will qualify you to participate in cool contests and events. Win T-shirts, jackets, gift certificates, or a seven day cruise! For more information see our Special Agent site.

EarthLink Network

Internet And Web Help Site

YOUR EMAIL

YOU HAVE 3 EMAIL MESSAGES

EARTHLINK

HOME PAGE
HELP
SERVICES
THE ARENA
bLINK
THE STORE

START PAGE

HELP
MODIFY

EARTHLINK NETWORK The ArenA

SEARCH

SEARCH

INFOSEEK
BIGBOOK
DOWNLOAD.COM
EARTHLINK

WEATHER

LOS ANGELES

Monday
Partially cloudy and cool
55 / 69

Tuesday
Rainy and cool
60 / 66

NEWS [modify]

Your Start Page news is provided by Individual.

Travel & Tourism

Airlines Offer Travel Bargains Up to 75% Off; Consumers Can ...

Vanguard Airlines' Incredibly-Low-Everywhere-We-Go Sale

Guest service soars with Vail and Beaver Creek revolutionary in-flight ...

Pennsylvania Governor Ridge Announces Unique Regional Public/Private Partnerships to Impact ...

U.S. space-style ride for the public -- at $10,000

Sampling Japanese Theme Parks

Interactive Games & Entertainment

Acclaim Entertainment's Space Jam Video/PC Game Makes a Fast Break ...

LIVE Entertainment Offers Walk-on Role in Motion Picture to Web ...

Tim Allen, Dana Carvey, Dennis Miller, Kevin Bacon, Carl Reiner, ...

Digital maps of New England to make life easier for ...

Music

Online giants accused of copyright scaremongering

Rolling Stones to tour U.S.-British newspaper

Windham Hill Composer/Pianist Jim Brickman to Release Third Album 'Picture ...

Bone Thugs-N-Harmony Keep Promise to Take Tre to the Top ...

Regina Regina Release Debut CD on Giant Records New Duo ...

STOCK QUOTES [modify]

Quotes are provided by PC Quote. Data is delayed 20 minutes unless noted.

Company Symbol	(MSFT)	(T)	(IBM)	(ATVI)	(AAPL)	(NSCP)	($INDU)	(COMP)
Last Sale	79 7/8	39 1/8	151 7/8	10 3/4	22 1/2	54 3/8	6337.16	1283.04
Net Change	+ 3 1/8	0	+ 3 1/4	- 1 3/8	- 1/8	- 1 5/8	+ 28.83	+ 16.72
Time of Last	16:01	17:01	16:29	16:00	16:01	16:01	14:04	13:44

WEB LINKS [modify]

EarthLink	Sports	Entertainment	Finance	My Favorites
EarthLink Home	EarthLink Sports	Earthlink's Hollywood	EarthLink's Finance	UNIX Reference Desk
Daily bLink	ESPN	MoviesLink 777FILM	Smart Money	News.com
The Arena	SportsLine USA	Hollywood Online	CNN Finance Network	Hotwired
The EarthLink Store	The Sports Network	Movie Reviews	NASDAQ	CNN
What's Hot	The Sports Server	The Internet Movie Database	Investor Dictionary	Word
Technical Support		The Ultimate TV List		Shareware.com
				USC

1 **STYLIZE** Choose how your page looks and what goes on it.

2 **GOT E-MAIL?** We'll tell you as soon as it comes in.

3 **NEWS** Select from 25 categories you're interested in and we'll gather it for you from over 700 sources.

4 **STOCK QUOTES** Watch your wallet fatten with your choice of stock quotes updated by PC Quote.

5 **PREMIUM CONTENT** Enjoy discounted rates and direct links to services from Quote.com, CompuServe® and others.

6 **WEATHER** Find out if you need shades or a scarf, with a 4-day local forecast.

7 **WEB LINKS** Select personal links to your favorite Web sites so they're only one click away.

8 **WEB SEARCH** If it's not on your Start Page, use a keyword to search the Internet to find exactly what you're looking for.

It's *your* Internet™

Unlimited Internet
Your Personal Start Page
Toll free 24-hour help line
$19.95 a month

call 1-800-395-8425

ll the goodies you expect... and more! Personal Start Page Netscape Navigator™ E-Mail ewsgroups Free Website Multiplayer Gaming Over 500 Dial-up numbers 24/7 Help 800# Chat DN Business Solutions National Frame Relay The Net "A"- Rated Pournelle's Choice Yahoo Best ee software package for Win3.1™, Win95™ and Mac®

Circle 85 on reader service card

©1997 EarthLink Network, Inc. Trademarks are property of their respective owners. All rights reserved. EarthLink Network, Inc. 3100 New York Drive, Pasadena, CA 91107

Improve Your View

WHEN IT COMES to your computer, what you see *is* what you get. And if what you see is a blurred, flickering image or a video clip that looks like a slide show, what you usually get is a headache.

Most older computers—and even many newer ones—aren't equipped to handle the greedy demands of today's software. Here's a guide to getting the right stuff from your monitor and graphics card.

IT'S IN THE CARDS

LIKE TELEVISIONS, monitors offer several adjustments for controlling picture quality. But it's your graphics card that collects all the screen-bound data and then sends it to the monitor. The two key settings are easily changed in Windows 95: Go to Control Panel, double-click the *Display* icon, and click the *Settings* tab.

Screen resolution is the number of individual dots, or pixels, that make up the screen image. The most common settings are 640 horizontally by 480 vertically and 800 by 600, and some people use 1024 by 768 comfortably on a 17-inch monitor. The more pixels displayed, the sharper the image. Most applications automatically adjust to the set resolution, but some, including certain multimedia titles and games, may work at only one setting.

Color depth is the total number of colors available for each pixel. It's often denoted by the bits allotted to each pixel: 8-bit color is 256 (2^8) colors, 16-bit color (or *high color*) is 65,536 (2^{16}) colors, and 24-bit color (or *true color*) is 16,777,216 (16.8 million or 2^{24}) colors.

Selecting 8-bit color can noticeably increase your graphics performance. Most business applications and many multimedia titles work fine at this color depth.

You usually must reboot the computer for the change to take effect.

GET REFRESHED

VERTICAL REFRESH RATE IS THE number of times per second that the graphics card draws (*refreshes*) the image on the screen. Rates lower than 75 screens per second (75 Hz) produce a flicker on the screen that can cause eyestrain after long periods of viewing.

To reset the refresh rate, run the utility software that comes with your graphics card. Some cards can be set as high as 120 Hz. But unless you're constantly working with very detailed graphics, rates higher than 80 Hz just add an unnecessary processing burden.

If both your monitor and graphics card support Plug and Play Data Display Channel specifications, then you may not need to reset the refresh rate. The DDC spec allows the card and monitor to talk with each other and automatically adjusts the refresh rate to the highest possible setting. But beware: If Windows 95 can't find the monitor's .inf file, it will set the refresh rate to a lowly 60 Hz. To check, look in your monitor's setup utility for an announcement of the current refresh rate.

IN THE DRIVER'S SEAT

MAKE SURE YOU'RE running the best software driver available. If you upgraded to Windows 95 you may still be stuck with a clunky real-mode driver instead of a more efficient protected-mode driver. Open Control Panel, double-click the *System Properties* icon, and click the *Performance* tab for a list of current real-mode drivers and other suboptimal conditions.

Even if you're using a protected-mode driver, there's no guarantee you have the best that's available. Your best bet is to download the latest drivers from your card vendor's Web site and install them yourself. Even if you've got a new graphics board with drivers on a floppy disk or CD-ROM, check the Web site; video drivers tend to be updated very frequently.

KEEPING IT IN MEMORY

ONE OF THE BIGGEST bottlenecks in getting high-resolution data to the screen is video memory. To gauge how much memory you need for a particular resolution and color depth, just multiply the resolution (in pixels) by the color depth (in bytes), then add 30 percent for overhead. Or just take a look at the figure above.

If you're not sure how much memory is on your video card, open Control Panel and double-click the *Display* icon to see if the card's driver supports an information tab (names vary) that shows the amount of video memory currently installed.

If you need more memory, consult the manual or check with your vendor to see if your video card is expandable; some cards have sockets for memory upgrades. If yours doesn't, you'll need a new card. When ordering memory for an upgrade, make sure you know what type your card uses—DRAM, VRAM, or one of the other new types of video memory.

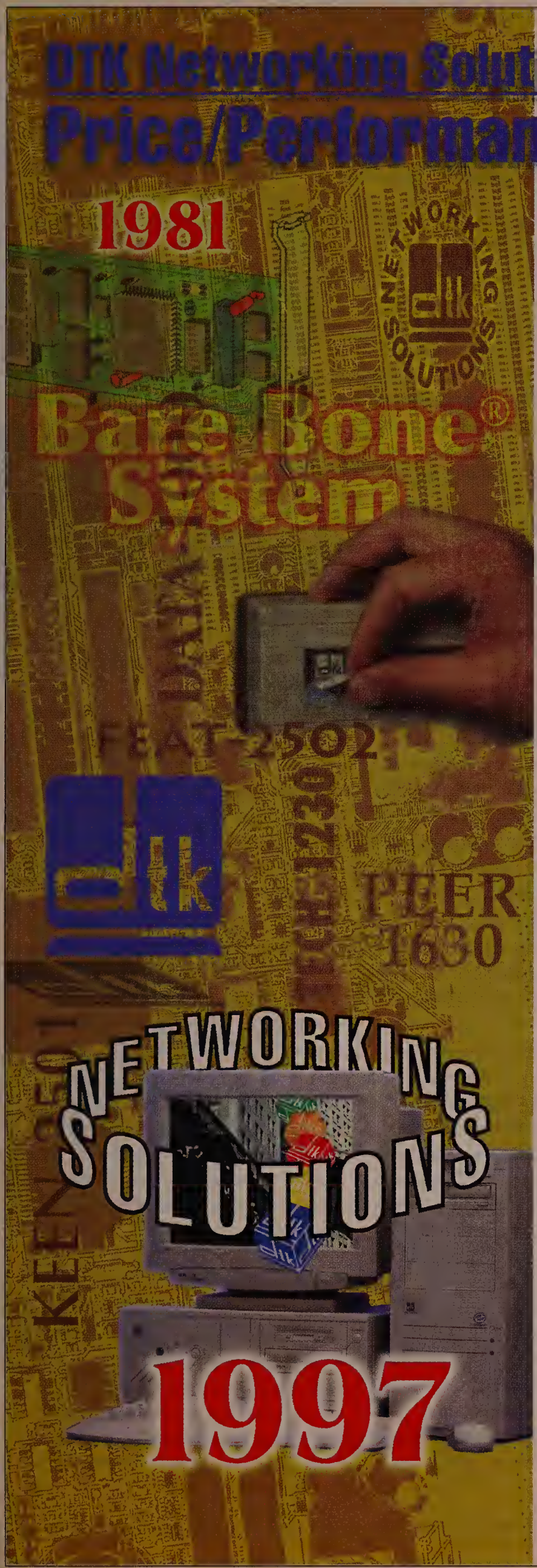
How Much Video Memory Do You Need?

RESOLUTION	256 colors (8-bit color depth)	65,536 colors (16-bit color depth)	16,777,216 colors (24-bit color depth)
640 by 480	1MB	1MB	2MB
800 by 600	1MB	2MB	2MB
1024 by 768	2MB	2MB	4MB
1280 by 1024	2MB	4MB	4MB

SCREEN RESOLUTION AND COLOR DEPTH dictate the amount of video memory you need.

Find additional tips at http://www.pcworld.com/hereshow.htm. Hardware Tips *welcomes your questions and pays $50 for published items. Kirk Steers is a* PC World *contributing editor.* *See page 12 for contact information.* ■

DTK Networking Solutions...
Price/Performance Powerhouses!



DTK Computer enters its 17th year this month and, oh!, what changes we have seen.

From the Intel® 8086/8088 to today's Pentium® Pro chip, we've experienced *six generations* of quantum growth in personal computer power! That's like compressing 150 years into 16!

Today, DTK's new APRI-32 network server, based on dual Intel® Pentium® Pro processors, handles up to 384MB of RAM and operates at 200MHz...with *multi-gigabyte* hard drive options. Now, *that's* a computer!

At DTK, we not only manufacture and sell NT®- and NetWare®-certified hardware, we also sell networking *solutions*. Our manufacturing is ISO-9001 certified, our technical support staff is network-savvy, and our technical support is free!

intel inside
PENTIUM® PRO PROCESSOR

Consider DTK for your next networking investment. With 16 offices across the U.S., we're big enough to provide an excellent Price/Performance ratio, yet small enough to offer a quick response.

DTK Computer...for Price/Performance Networking Solutions!

PC World January 1997 - Top 20 Systems Review

DTK QUIN-55M/Pentium® Processor/200MHz	**#20** Power PCs
DTK QUIN-55M/Pentium® Processor/133MHz	**#9** Budget PCs
DTK DTN-5A Pentium® Processor/120MHz	**#10** Budget Notebooks

"HP, DTK lead the Pentium Pro pack"

"The DTK APRI-31M/P200 is a price/performance leader, and an excellent value." Computer Reseller News, 9/2/96

"If you need a high-speed, easily configured and expandable system at a good price, the DTK APRI-31M system is an excellent value." Windows NT Magazine, 2/97

DTK Computer

Nationwide (800) 289-2385
www.dtkcomputer.com

Circle 84 on reader service card

The Intel Inside Logo and Pentium are registered trademarks and the Pentium Pro Processor Logo is a trademark of Intel Corporation. The DTK monitor logo is a registered trademark of DTK Computer Inc. All other product names used herein are for identification purposes only and are the property of their respective owners. ©1997 DTK Computer Inc.

Accessorize CU-SeeMe

IF YOU TRIED THE CU-SeeMe Internet videoconferencing software I reported on last month, you're probably ready for a couple of add-ons that make videoconferencing easier and more fun.

The first add-on is a must if you want to participate in a CU-SeeMe conference but lack a video camera. Though quite a few people have Internet accounts, and the software is downloadable, digital video cameras and video capture boards are still a luxury. And while CU-SeeMe allows you to transmit chat text and audio without video, an image is more interesting to the people you're trying to reach, and is the only way to access some *reflector* (CU-SeeMe transmitter) sites.

Bill Neisius's free CU-Doodle utility solves this problem by letting you send parts of your screen—and provides the camera-endowed with a cool way to place text and graphics overlays onto their video.

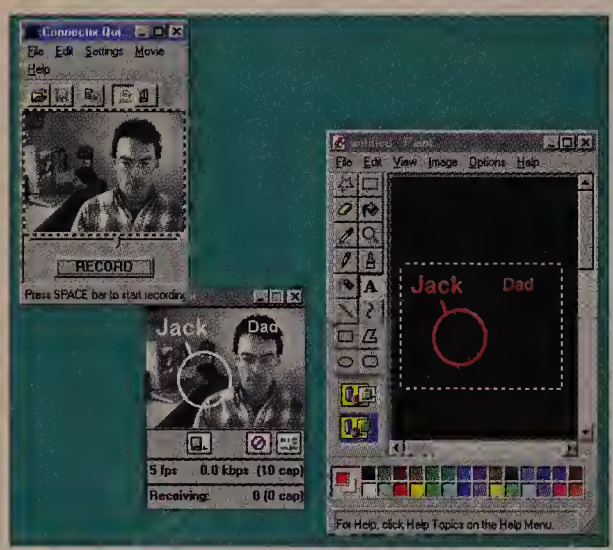


FIGURE 1: ANNOTATE VIDEOCONFERENCES with circles and arrows and all kinds of groovy things (apologies to Arlo Guthrie) using the free CU-Doodle add-on with CU-SeeMe.

Download CU-Doodle from Neisius's FTP directory (ftp://ftp.netcom.com/pub/ne/neisius/cudoodle.zip).

CU-Doodle is a single DLL file you install into Windows; a text file guides you through the simple installation process. The program puts two movable windows on your desktop—the main capture area and the overlay area. The capture window reads a part of your screen and feeds it to CU-SeeMe in place of video from a digital video camera or capture board. To transmit an area of your screen, position the capture window over the part you want to send, or move the program window you want to transmit under the capture window. The overlay window works similarly, but places any nonblack pixels in the overlay window on top of the capture window contents or your video camera's output, allowing you to annotate, censor, or just doodle on top of your outgoing image.

In **FIGURE 1**, the window on the left is the Connectix QuickVideo recorder, with CU-Doodle's capture frame (the dotted-line rectangle) over it. On the right are some text and graphics I whipped up in Windows' Paint—you can use any program that lets you create a black background or foreground. In the center, the local video window of the freeware CU-SeeMe displays the results. If I were using White Pine Software's color-capable Enhanced CU-SeeMe, my text and graphics would display in color.

CU-Doodle may also come to your rescue if you own a video capture board or other device that CU-SeeMe doesn't support. For example, Play Inc.'s Snappy, a hardware module that you attach to the parallel (printer) port of your Windows PC, isn't intended to capture motion video, and CU-SeeMe doesn't support it—it's for capturing still images from a video source such as a VCR or camcorder. But hook your videotape up to the Snappy and let it roll, and you'll see a choppy version of your video rolling in the Snappy software. Place CU-Doodle's capture frame over this display to capture the video frame, call out "Roll 'em!" and you're in show biz. The technique probably won't work with capture boards that bypass your video board's frame buffer and send video directly to the screen, however.

After a few sessions with CU-SeeMe, you'll discover that many reflectors are perpetually busy. If you persist, though, you'll eventually get in. The second add-on, Richard Cekal's free Cusdial (see **FIGURE 2**), makes it easier for regular users to log on to their favorite CU-SeeMe reflectors. Neither the free nor the shareware version of CU-SeeMe lets you automatically retry a reflector until you connect; you have to sit and click until the reflector gods allow you to enter. Cusdial does this job for you, and it comes with an extensive reflector list that you can update as you find new sites. You can mark favorite

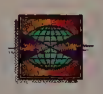
FIGURE 2: AUTOMATE YOUR CU-SEEME connections with Cusdial, a free utility that takes a lot of hassle out of Net videoconferencing.

reflectors and have the program dial them until it hits the jackpot, retry a single reflector ad infinitum at an interval you determine, or simply dial every reflector on the list, one at a time, while you continue to do your real job.

Like CU-Doodle, Cusdial works with both CU-SeeMe versions. Check Cekal's Web site (http://www.spherenet.com/rcekal/index2.htm) for the latest version.

SEE YOU IN THE FUNNY PAGES

IT'S BEEN FUN writing this column for the last six months, but it's time for me to fade to black. Next month, longtime *PC World* contributor and media expert Richard Jantz takes over, so send your multimedia tips and questions to him. I'm still writing *Answer Line* and *Bugs and Fixes*, so continue to ask me general questions about hardware and software.



Find files from this article and additional tips at http://www.pcworld.com/hereshow.html. Multimedia Tips *welcomes your questions and tips and pays $50 for published items. Contributing Editor Scott Spanbauer is author of* The No B.S. Guide to Windows 95 *(No Starch Press, 1996, 800/420-7240). See page 12 for contact information.* ■

If you think you can find a better scanner than an Epson scan this.

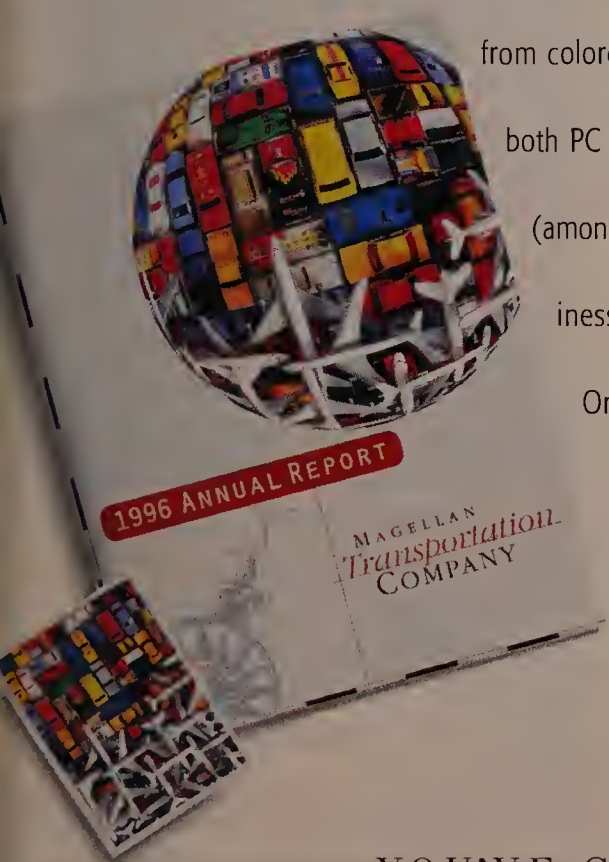
THE EPSON® EXPRESSION™ 636 COLOR SCANNER

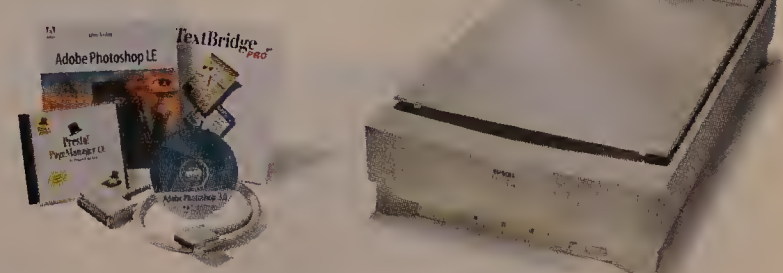
COMPARISON CHART	THE EPSON EXPRESSION 636	THE HP SCANJET 4C
Bit Depth	36	30
Colors	68.7 billion	2.0 billion
Maximum Resolution	4800 x 4800	2400 x 2400
Optical DPI	600	600
Grayscale Levels	4,096	1,024
SCAN SPEED-Preview	6 seconds	11 seconds
Color (4x5)	21 seconds	27 seconds
Grayscale	23 seconds	34 seconds
Text OCR	14 seconds	28 seconds

There's no denying we're making a pretty bold statement about our scanner. But with numbers like this, we can. Because Epson TrueScan™ technology with 36-bit scanning and 600-dpi optical resolution, gives you the power to capture 68.7 billion colors and countless details with incredible clarity. And everything you need to harness that power is easy to set up and easy to use. So you'll get high-quality images that will turn visual presentations and business documents into bold statements—more quickly and easily than other scanners can. And for a lot less money, too.

But there are other ways we outdo the competition that can't be expressed in numbers. With our exclusive Text Enhancement Technology and Auto Area Segmentation, you can accurately scan both text and graphic images from the same page—even from colored backgrounds. And you'll get greater versatility with easy, simultaneous hook-up to both PC and Mac platforms. Nobody else can do that. So now that you see what the numbers (amongst other stuff) do for our scanner, wait'll you see what our scanner does for your business. For more information call 1-800-GO-EPSON and ask for operator 3055.

Or visit us at www.epson.com.





The Expression 636 executive PC bundle comes with Adobe Photoshop™ LE, Xerox TextBridge Pro™ '96, NewSoft™ Presto! PageManager™ LE and SCSI interface and cable. As well as a competitive edge.

YOU'VE GOT TO SEE IT IN EPSON COLOR.™

Product comparison based on independent third party testing using a 200 MHz Pentium computer with Windows 95. Scanners were operated in best quality mode using Adobe Photoshop, TWAIN drivers and SCSI cards included in the box. Images were single-pass scanned at 400 dpi. Executive Mac bundle also available with Adobe Photoshop LE, e. Paper™ and SCSI cable. Other scanner configurations available. Awards given to the ES-1200C, one in the line of Epson award-winning scanners. Do not scan published material without permission of the copyright holder. EPSON is a registered trademark of Seiko Epson Corp. Expression and TrueScan are trademarks of Epson America, Inc. All other trademarks are the property of their respective owners. © 1996 Epson America, Inc.

PC WORLD BEST BUY

MW EDITORS' CHOICE

Build a Windows 95 Network

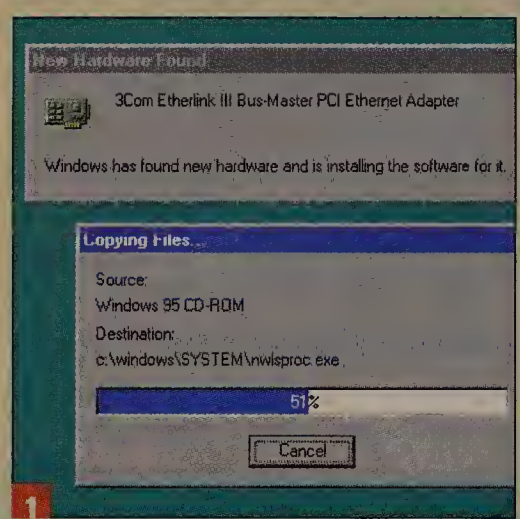
IF YOU HAVE MORE than one Windows 95 PC in your business or home, hooking them together into a network makes plenty of sense. You can share files without using floppies. You also can share printers, CD-ROM drives, and even outbound faxing—although you need a specialized software package to share modem operations. Best of all, Windows 95 itself can handle all the networking chores—and Windows for Workgroup machines can come along for the ride.

Installing the necessary network adapters and cabling is a relatively simple matter. To start off, you pick either coaxial or twisted-pair cabling. Coaxial is easier to hook up, but the thick cable is often difficult to run and to keep from getting in the way.

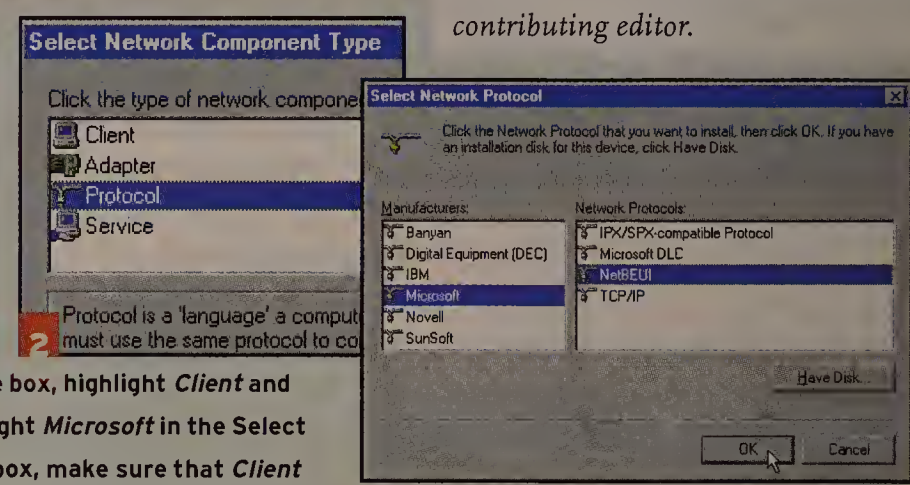
Thin twisted-pair cables, similar to phone wires, are easier to work with and often produce a more robust network. They do require you to shell out for a central connection box, called a hub. But costs for low-end hubs have dropped below $200, in some cases substantially below, so these devices are well within reach.

Here are the steps you should take to set up each Windows 95 computer to join a network. For more detailed tips, check out http://www.pcworld.com/hereshow/.

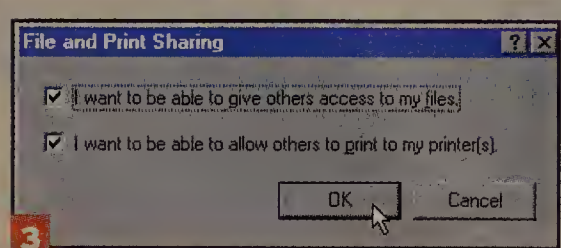
Stan Miastkowski is a PC World *contributing editor.*



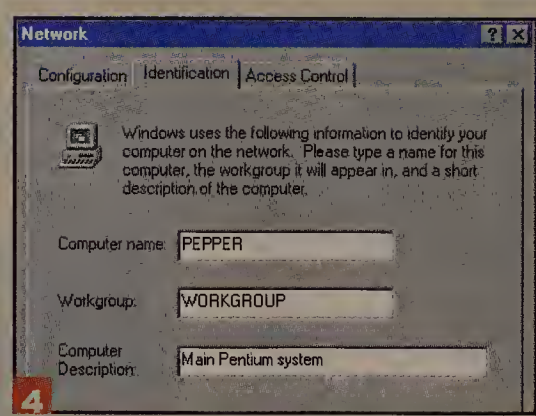
Install the hardware, add a driver. Open your PC, insert the network card in a free slot, and connect the network cable. Do the same for the other PCs, and make sure everything's hooked together properly. Turn on the power. Windows 95 should automatically detect each network card, ask you to insert the floppy disk that came with it, and install the appropriate driver software for the card. In some cases, the Windows 95 CD-ROM itself will offer the driver you need.



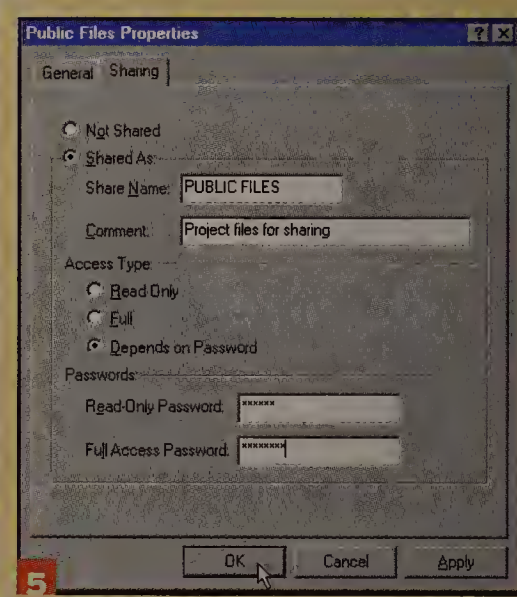
Install the client software. Double-click Control Panel's *Network* icon and click *Add.* In the Select Network Component Type box, highlight *Client* and click *Add.* Highlight *Microsoft* in the Select Network Client box, make sure that *Client for Microsoft Networks* is highlighted, and then click *OK.* In the main Network box, click *Add,* highlight *Protocol* on the next screen (above), and click *Add.* In the Select Network Protocol box (above right), highlight *Microsoft* in the left-hand box and *NetBEUI* in the right-hand box. Click *OK.*



Set up file and print sharing. You want to be able to swap files and share the printers—that's why you're building the network in the first place, right? In the main Network box, click *File and Print Sharing,* indicate which items you want to share, and click *OK.*



Identify yourself. Choose the Identification tab in the main Network box, and enter a name for your PC, a Workgroup name, and a description. Click *OK.* Windows 95 will attempt to copy the network files. If they are not on your hard disk, it will ask for the Windows 95 CD-ROM. You'll eventually be told to restart your PC.



Log in, share, add other PCs. Enter a user name (and a password if you want one) the first time you start your PC after all the network components are installed. Right-click a disk or folder in Explorer, select *Sharing* from the shortcut menu, and pick the *Sharing* tab in the resulting dialog box. Enter your preferences and click *OK.* Install networking on the other PCs. Turn off the PCs, replace the covers, turn everything on again, and start networking! ■

WINNER OF 34 BEST BUY AWARDS — Computer Shopper Best Buy of 1997

USA FLEX

The Lowest Prices on Over 20,000 Computer Products

HEWLETT PACKARD Authorized Reseller

HP Omnibook 5500CT

- 12.1" Active Matrix Display • 16MB RAM
- 133MHz Pentium Processor • 1.35GB Hard Drive

F1321A $3799

Omnibook 800CS

- 10.4" Active Color Display • 16MB RAM
- 100MHz Pentium Processor • 1.35GB Hard Drive

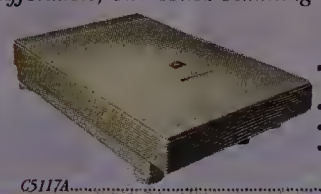
F1171A $2299

Scan It. Shape It. Share It.

HP ScanJet 5p Scanner

Affordable, One-Touch Scanning

New from HP



- 1200dpi enhanced resolution; 300 dpi optical
- 24-bit Color (16.7 Million colors)
- HP AccuPage Technology
- 1-year HP warranty

C5117A $369

HEWLETT PACKARD Authorized Reseller

Hewlett-Packard LaserJet 6P Printer

- True 600dpi • Fast 8ppm printing
- Fast, wireless 4Mb/s infrared printing
- 1-year warranty w/free HP Express Exchange overnight printer replacement

C3980A $719

HP LaserJet 6MP printer

- Faster processing & Adobe™ Postscript™ formatting
- Easy sharing w/two parallel ports, plus LocalTalk & 4Mb/s IrDA infrared connectivity

C3982A $879

Monitors/Graphics Cards

NEC

15" M500 Multimedia	$479
17" M700 Multimedia	$749
15" MultiSync XV15+	$429
17" MultiSync XV17+	$749
21" MultiSync XE21	$1674
17" P750	$984
21" P1150	$1950
29" XM29	$2839
37" XM37	$5608
37" XP37	$7878

VIEWSONIC

15" VS-15GS	$352
17" VS-17EA	$584
17" VS-17GS	$605
20" VS-20G	$1102
21" VS-GB10	$1494
21" VS-P810	$1579

SONY

15" CPD-100SF	$489
15" CPD-100SX	$399
17" CPD-200SF	$799
17" CPD-200SX	$699
20" CPD-20SFII	$1635
20" CPD-20SEIIT	$1880

MAG INNOVISION

14" DX1495	$253
15" DX1595	$348
17" DX1795	$604
15" DX15T	$385
17" DX700T	$692
17" MXP17F	$704
21" MX21F	$1484

PLAY

Snappy Video Capture	$189

CTX

14" CTX-1415C-1	$224
14" CTX-1451CLR-1	$237
17" CTX-VL700	$537
20" CTX-20B5-1	$1060

PANASONIC

15" E15	$316
15" PanaSync Pro P15	$386
17" PanaSync S17	$620
17" P17	$735
21" E21	$1394

PRINCETON GRAPHICS

14" EO40	$219
15" EO50	$318
17" ULTRA17+	$593

HERCULES

T2312EDO Terminator 3D PCI, 2MB	$109
T2212EDO Terminator 64/Video, 2MB	$77
D5202 Dynamite 128/Video, 2MB	$109

ATI

ATI-VIDXPCI2 Video Xpression PCI, 2MB	$115
ATI-3DXPCI2 3D Xpression PCI, 2MB	$145
ATI-GXPC12MB Graphics Xpression, 2MB	$92
ATI-WINTURBOPCI-2 ATI WinTurbo, 2MB	$210
GPROTURBOPCI2 Graphics Pro Turbo, 2MB	$212
GPROTURBOPCI4 Graphics Pro Turbo, 4MB	$312

CREATIVE LABS

GBMA201 Graphics Blaster MA201	$69
GBMA202 Graphics Blaster MA202	$86
GBMA302 Graphics Blaster MA302	$129

Modems/PC Cards

MEGAHERTZ BY US ROBOTICS PC CARD

2B.B XJ Ethernet Cellular XJEM3288T	$309
2B.B XJ 10BaseT 10Base2 Cell XJEM3288C	$329
2B.B XJ 14.4 Fax Cell Capable XJ4288	$219
2B.B Cable 14.4 Fax Cellular CC4288	$239

US ROBOTICS PC CARD

2B.B Cable 14.4 Fax Dataview CR-001015	$259

SIMPLE TECHNOLOGIES PC CARD

2B.B SimpleJack 14.4 Fax STI-FAX288SJC	$222

HAYES PC CARD

Optima 33.6 EZJack SmartCom HAY-02690	$239

PRACTICAL PERIPHERALS PC CARD

Proclass 2B.B Cable PC288T2	$217
Proclass 2B.8 EZJack PC288T2-EZ	$217

CONNECTWARE PC CARD

PhoneWorks 33.6 To Go Cable PWTOGO288	$269

BOCA ISA BUS

Office Communicator 2B.B D1-FDVSP341	$139*
SoundExpression 2B.B D1-SE34SRS	CALL

CREATIVE LABS PC CARD

ModemBlaster 2B.B Cable MB28.8PCMCIA	$239

HAYES ISA BUS

Accura 33.6 SmartCom Software HAY-02758	$149*
Accura 33.6 SmartCom Software HAY-02760	$169

PRACTICAL PERIPHERALS ISA BUS

V.34 33.6 Data/Fax Internet PM336HCINET	$119*
V.34 33.6 Data/Fax Internet PM336MTIINET	$139

US ROBOTICS ISA BUS

Sportster 33.6 Software SP-000840	$139*
Sportster 33.6 Software SP-000839	$159
Sporster Vi DSVD Voice & Data SP-000980	$169*
Sportster WINMODEM Win Only SP-001125	$109*
Sportster Voice 33.6 SP-001171	$139*
COURIER V.EVERYTHING SP-001172	$189
COURIER V.EVERYTHING CR-001223	$239*
COURIER V.EVERYTHING CR-001224	$269

** Internal Modem*

All US Robotics 28.8 and 33.6 Modems Upgradeable to 56Kbps — Call Now For Details

Multimedia/CD-ROM

NEC

MultiSpin 4Xc 7 Disk Changer (External)	$349
MultiSpin BXi/8Xe	$239/$349
MultiSpin BX, IDE/ATAPI	$139

PANASONIC

10X 5-Disc CD-ROM Changer	$249
Portable 4X CD-ROM Drive	$299
Portable BX CD-ROM Drive w/Speakers	$399

PHILIPS

4X2 CD-Writer	from $499*

CREATIVE LABS

Blaster CD BX PnP	$249
Discovery CD BX	$379
SoundBlaster Performance BX PnP	$449
SoundBlaster 16 Value IDE PnP	$99
SoundBlaster AWE 32 PnP	$229
SoundBlaster 32 PnP	$139
WaveBlaster II	$99

PINNACLE MICRO

4X4 CD-Writer Internal/External	$229/$299

HEWLETT-PACKARD

HP Surestore CD-Writer	CALL

PLEXTOR

BPlex Internal w/o Interface	$349
BPlex External w/o Interface	$449
BPlex External w/ISA Card	$499
BPlex External w/PCI Card	$629

SONY

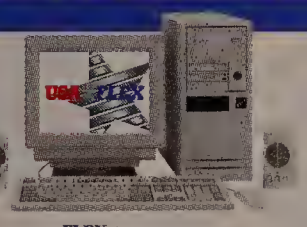
SRS-PC40 Speakers	$75
SRS-PC91	$139
SRS-PC300D Speakers	$199
6X Portable Discman	$369

**Price after manufacturer's mail-in rebate. Ask your salesperson for details!*

Desktops Systems

Compaq DeskPro Series

Call for prices on other brands...
- ★ IBM Aptiva™ C and S Series
- ★ IBM PC 340, 330, & 350 Series
- ★ AST Advantage Series
- ★ Hewlett-Packard Vectra 500 Series



DeskPro 2000, P166, 16MB, 1.26GB	$1749
DeskPro 4000, P133, 16MB, 1.08GB	$1499
DeskPro 4000, P166, 32MB, 2.5GB, 8X CD-ROM	$2399
DeskPro 6000, P166, 16MB, 1.08GB	$2299
DeskPro 6000, P166, 32MB, 2.18GB, MT	$2929
DeskPro 6000, P-Pro 200, 32MB, 2.1GB, 8X CD-ROM	$3249

FLEX Systems

The Flex 440 Special P-Pro180, 16MB, 1.6GB, MT, 8X, 14"	$1899
Multimedia Tower, P-Pro200, 32MB, 3.0GB, 12X, 17", BJC620	$3795
New Year Classic, P133, 16MB, 2.1GB, MT, 12X, 15", ZIP Drive	$1997
Multimedia Classic, P-Pro180, 16MB, 3GB, MT, 12X, 15"	$2995
Home/Office Special, P166, 16MB, 3GB, MT, 17", HL720, ZIP Drive	$3349
Business Workstations starting at	$1349

Custom Systems Available–Call your Flex sales representative for full details.

Printers...Laser/Ink Jet/Dot Matrix

HP PRINTERS

DeskJet 340	$239*
DeskJet 400C	$179
DeskJet 690C	$339
DeskJet B20CXi/870CXi	$379/$489
DeskJet 1600C /CM Printer	$1289/$1869
LaserJet 5L-FS	$389
LaserJet 6P/6MP	$719/$879
OfficeJet 330 (Printer/Fax/Copier/Scanner)	$519

EPSON

LX300	$169
LQ-570+/1070+	$245/$385
FX-B70/1170/2170	$289/$379/$499
LQ-870/2170	$447/$599
DFX-5000+/8000	$1395/$2329
Stylus Color 500 9 time award winner!	$279
Stylus Pro (720dpi Microdot)	$379
Stylus 1500 (up to 17x22)	$995
Stylus Pro XL (720dpi Microdot, up to 13x19)	$1799

Postscript Interpreter avail. for Stylus Pro & Pro XL color printers.

BROTHER

HL-720 (Windows Only)†	$349
HL-730 (Window & DOS)†	$399
HL-760 (1200x600)†	$479
HL-1060 (10ppm, 1200x600, dual bin)†	$799
MFC-690 (thermal)	$269
MFC-1950+ (ribbon)	$499
MFC-4550 (laser)†	$799
MFC-6550MC (laser)†	$999
MFC-7550MC (laser)†	$1199

† Straight paper path-no paper jams!

OKIDATA PRINTERS

OkiPage 4W (Windows Only)	$299
OL600e/OL610e/OL810e	$399/$499/$699
ML320/ML321	$319/$449
ML590/ML591	$449/$609

CANON

BJC-240	$179
BJC-4200†	$279
BJC-4550 (wide carriage)†	$499
BJC-620	$399
LBP-465 (Laser)	$359
C2500 (Fax, Scanner, Printer, Copier)	$599

†Purchase BJC-4200 or BJC-4550, get Photo Kit free from Canon!

LEXMARK

ColorJet Printer 1020/2030	$145/$199
ColorJet Printer 2050/2070	$249/$339
23B0/23B1 Plus Dot Matrix Printer	$315/$425
2390/2391 Plus Dot Matrix Printer	$359/$465
4079 Plus	$2439
4039 10 Plus	$1069
Optra E	$539
Optra R+/OptraRt+	$1249/$1479
Optra Lx+/Optra Lxn+	$1859/$2229
Optra C	$5989
Optra N/Optra N w/16MB RAM	$2679/$3199

PANASONIC PRINTERS

KX-P6500	$349*
KX-P1150/P2230	$135/$169*
KX-P3124	$315
KX-P2135	$245

NEC

SuperScript B60 (laser)	$479

**Price after manufacturer's mail-in rebate. Ask your salesperson for details!*

Scanners

EPSON

Action Scanner II	$403
ES-1000C	$539
Optional 30 Sheet Auto Doc Feeder	$459
Flatbed Scanner (Pro)	$1846
Flatbed Scanner (Artists)	$1333
Flatbed Scanner (Exec)	$891

NIKON AX110

Scantouch Flatbed Scanner	$299

MICROTEK

Scanmaker E3	$299
PageWiz	$114
Scanmaker E6	$553
Scanmaker E6 Pro	$732

HEWLETT-PACKARD

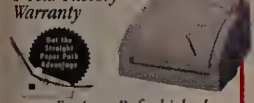
HP ScanJet 4S Scanner	$179
HP ScanJet 5P Scanner (color/grayscale)	$369
HP ScanJet 4C Scanner (color/grayscale)	$829

REFLEX

Check out these Absolutely Lowest Prices on Manufacturer Certified Remanufactured Products and Special End-of-Life Close-Out Deals!

brother.

HL-630 Laser
300dpi, 6 ppm, straight paper path
1 Year Factory Warranty



Factory-Refurbished
BI-HL630-R $229

Panasonic

KXL-720 2X Portable CD-ROM Drive
300KB/s data transfer rate with a 375ms access time. Drive includes compact AC adapter, SCSI PC Card interface.

KXL-D720-R $119
Factory-Refurbished - 2 Year Factory Warranty

TOSHIBA

Satellite Pro™
Satellite Pro 415CS
Pentium 90, 810MB, 8MB
11.3" DS $1799

TOSHIBA ENCORE

While Supplies Last!

Notebook Computers

NEW MODELS

TOSHIBA

Satellite 110CS, P100, 11.3"DS, 810MB	$1249
Satellite 200CDS, P100, 11.3"Act., 810MB	$1539
Satellite Pro 420CDS, P100, 11.3" DS, 1.26GB	$1899
Satellite Pro 420CDT, P100, 11.3" Act., 1.26GB	$2869
Satellite Pro 430CDS, P120, 11.3" DS, 1.26GB	$2399
Satellite Pro 430CDT, P120, 11.3" Act., 1.26GB	$3269
Tecra 500CS, P120, 12.1" DS, 1.3GB	$2119
Tecra 500CDT, P120, 12.1" Act., 1.3GB	$3749
Tecra 510CDT, P133, 12.1" Act., 2.02GB	$4429
Tecra 730CDT,P150, 12.1"Act., 2.0GB	$5579
Tecra 730XCDT,P150 w/MMX, 12.1"Act., 2.0GB	$5579
Tecra 740CDT,P166 w/MMX, 13.3"Act., 2.0GB	$6249
Portege 650CT, P133, 11.3" Act., 1.35GB	$3849
Portege 660CDT, P150, 11.3" Act., 1.35GB	$5099

OLIVETTI Echos

P100C, P100, 11.3" DS, 6X CD-ROM, 1.3GB	$2052
P100E, P100, 10.4" Act., 6X CD-ROM, 1.3GB	$2345
P120E, P120, 11.3" Act., 6X CD-ROM, 1.3GB	$2999
P133S, P133, 11.8" Act., 6X CD-ROM, 1.3 GB	$3604

HEWLETT-PACKARD Omnibook

5500CS, P100, 16MB, 1.3GB, 11.3" DS	$1999
5500CT, P120, 16MB, 1.35GB, 10.4" Act.,	$2949
5500CT, P133, 16MB, 1.35GB, 12.1" Act.	$3799
5500CT, P133, 16MB, 2.0GB, 12.1" Act.	$4129
B00CS, P100, 16MB, 810MB, 10" DS.	$2299
800CT, P133, 16MB, 1.35GB, 10.4" Act.	$3599

IBM ThinkPad

365XD, P120, 10.4" Act., 810MB,	$2189
365X, P133, 11.3" DS, 1.0GB	$2189
365X, P120, 10.4"Act., 810MB	$2379
365X, P133, 11.3"Ds., 1.35GB	$3329
760EL, P120, 11.3" DS, 1.35GB	$2699
760EL, P133, 12.1" Act., 2.18GB	$4759
760E, P150, 12.1" Act., 1.26GB,	$5429
760ED, P133, 12.1" ACT., 2.1GB,	$5699

AST Acentia Series

J30, P100, 10.4" DS, 800MB	$1705
J30, P100, 10.4" Act., 810MB	$1722
J50, P133, 10.4" Act., 810MB	$2118
P30, P100, 11.3" DS, 1.2GB, 4X CD	$1989
P30, P100, 11.3" DS, 810MB, 4X CD	$2226
P30, P133, 11.3" Act., 810MB, 4XCD	$3221
P50, P133, 11.3" Act., 810MB, 4X CD	$3458
P50, P133, 12.1" Act., 1.0GB, 6X CD	$3694
P50, P133, 12.1" Act., 2.1GB, 6X CD	$4074
A41, P120, 11.3" DS, 1.08GB, 6X CD	$2149
A41, P120, 12.1" Act, 1.08GB, 6X CD	$2704

NEC

Versa 2400, P100, 11.3" DS, 810MB	$1604
Versa 2400CD, P100, 11.3" DS, 1.06GB	$2082
Versa 2430CD, P133, 11.3" DS, 1.08GB	$2831
Versa 4230, P133, 10.4" SVGA TFT, 1.08GB	$3103
Versa 6030H, P133, 12.1" DS, 1.35GB	$4254
Versa 6030X, P133, 12.1" XGA, 1.44GB	$4327

TARGUS — INSTANT $20 OFF this Targus leather bag with purchase of any notebook computer

CLN1-P

TEXAS INSTRUMENTS

Extensa 900 P133, 12.1" DS, 1.35GB	$3168
Extensa 900T P133, 11.3" Act, 1.35GB	$3649
Extensa 900CDT P133, 11.3" Act, 1.35GB, 8XCD	$4129
Extensa 600 P120, 12.1" DS, 810MB, 6X CD	$1920
Extensa 650CDT P133, 11.3" Act, 2.1GB, 10X CD	$3629
Extensa 650CD P133, 12.1" DS, 1.35GB, 10X CD	$2881
TM 6020, P120, 11.3" Act., 1.08GB	$3168
TM 6030, P133, 12.1" Act., 1.35GB	$3653

COMPAQ Armada & LTE Series

Armada 1120, P100, 10.4" DS, 810MB	$1499
Armada 1120T, P100, 10.4" Act, 810MB	$1959
Armada 4110, P100, 11.3" DS, 810MB	$2459
Armada 4110D, P100, 11.3" DS, 810MB	$2849
Armada 4120, P120, 11.3" DS, 1.08GB	$2999
Armada 4120T, P120, 11.8" Act, 810MB	$3699
Armada 4130T, P133, 11.8" Act, 1.08GB	$4349
LTE 5150, P100, 11.3" DS, 810MB	$2849
LTE 5250, P120, 10.4" Act, 810MB	$3129
LTE 52B0, P120, 11.3" Act, 1.3GB	$3829
LTE 5300, P133, 12.1" Act, 1.3GB	$4299
LTE 53B0, P133, 12.1" Act, 2.16GB	$5379

HITACHI M & E Series

M 120T, P120, 11.8" Act., 1GB, 4X CD	$2842
M 133T, P133, 11.8" Act., 1GB, 6X CD	$2963
E 133T, P133, 11.3"Act., 810MB.	$2549

USA FLEX
444 Scott Drive
Bloomingdale, IL 60108
Phone: 630-582-6206
Fax: 630-351-7204
24 hours Mon.-Fri.
9AM-4PM(CT) Sat. & Sun.

1-800-876-5606

GOVERNMENT & EDUCATION 1-800-872-8699

Code # WD0307 Please reference this code when ordering.

Federal Express® Delivery Service Available — FedEx

No Surcharge On These Credit Cards

Circle 231 on reader service card

PCs COMPLEAT®
A COMPUSA® COMPANY
800-210-1404

TAP TECHNOLOGY ASSURANCE PLAN
PCs Compleat's **Technology Assurance Plans** for systems and peripherals provide coverage above and beyond that offered by the manufacturer. Call Today!

THE BEST BRANDS

FUJITSU

FUJITSU PC CORPORATION

Engineered for Mobile Comfort

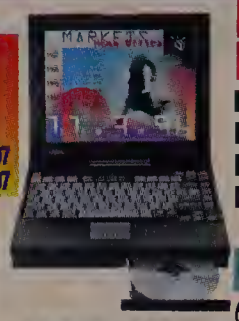
LifeBook™ 500 Notebook

- Up to 150MHz Pentium processors
- Built-in 6X CD-ROM drives
- Up to 12.1" displays
- 28.8 fax modem on selected models

Lifebook™ 520D as low as $1999
3-Year TAP Warranty..... $99.97
5-Year TAP Warranty... $299.97

Model	CPU	Screen	RAM/HD	CD	Price
520D	120MHz	11.3" Dual Scan	8/810MB	6X	$1999
520T	120MHz	11.3" Active	8/810MB	6X	2799
530T	133MHz	11.3" Active	16MB/1.3GB	6X	3499 *
555T	150MHz	11.3" Active	16MB/1.3GB	6X	4399 *

* Includes built-in 28.8 fax modem


LifeBook™ 500 Notebook

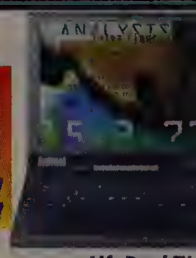
LifeBook™ 600 Notebook

- 133MHz Pentium processors
- Only 1.2" thick and 4.2 lbs.
- 12.1" Active Matrix displays
- Integrated 28.8 fax modem

Lifebook™ 635T as low as $3999
3-Year TAP Warranty..... $99.97
5-Year TAP Warranty... $499.97

Model	CPU	Screen	RAM/HD	CD	Price
635T	133MHz	12.1" Active	16MB/1.3GB	Opt.	$3999
635T	133MHz	12.1" Active	16MB/1.3GB	Opt.	3999 *

* Includes Windows for Workgroups or Windows 95


LifeBook™ 600 Notebook

Additional models are available with Windows for Workgroups or Windows 95

TOSHIBA

FREE PORT REPLICATOR WITH SATELLITE 110 PURCHASE. WHILE SUPPLIES LAST.
Satellite Pro 430

Satellite Pro 420 & 430

- Up to Pentium 120MHz processors
- Up to 10X CD-ROM drives
- 11.3" Dual Scan & Active Matrix displays
- Built-in SoundBlaster Pro compatible audio

Satellite Pro 420CDS as low as $2148
3-Year TAP Warranty..... $99.97
5-Year TAP Warranty... $349.97

Model	CPU	Screen	RAM/HD	CD	Price
420CDS	100MHz	11.3" Dual Scan	8/772MB	6X	$2148
430CDS	120MHz	11.3" Dual Scan	16MB/1.2GB	10X	2499
420CDT	100MHz	11.3" Active	BMB/1.2GB	6X	2899
430CDS	120MHz	11.3" Active	16MB/1.2GB	10X	3399

Tecra 510

Call about 200, 660 and 730 models

Tecra 500 & 510

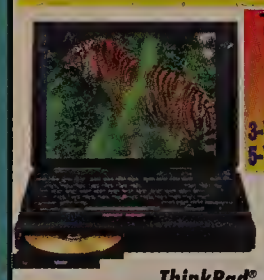
- 120 & 133MHz processors
- Up to 10X CD-ROM drives on selected models
- 16MB EDO RAM memory
- 12.1" Super VGA displays

Tecra 500CS as low as $2199
3-Year TAP Warranty..... $99.97
5-Year TAP Warranty... $349.97

Model	CPU	Screen	RAM/HD	CD	Price
500CS	120MHz	12.1" Dual Scan	16MB/1.3GB	Opt.	$21
500CDT	120MHz	12.1" Active	16MB/1.3GB	6X	38
510CDT	133MHz	12.1" Active	16MB/2.1GB	10X	45

IBM®

IBM Business Partner


ThinkPad® 760

ThinkPad® 760EL as low as $3399
3-Year TAP Warranty..... $99.97
5-Year TAP Warranty... $459.97

ThinkPad® 760

- Up to 150MHz Pentium processors
- Built-in CD-ROM drives on 760ED
- 16-bit SoundBlaster compatible audio
- Built-in 28.8 fax modems on selected models
- 11.3" and 12.1" Super VGA displays

PC MAGAZINE EDITORS' CHOICE

Model	CPU	Screen	RAM/HD	CD	Price
760EL	100MHz	11.3" Dual Scan	8/810MB	Opt.	$3399
760ED	133MHz	12.1" Active	16MB/1.2G8	4X	5399
760E	150MHz	12.1" Active	16MB/2.1GB	Opt.	5699
760ED	133MHz	12.1" Active	16MB/2.1GB	6X	5999

Additional models available. Call for details.

ThinkPad® 365XD

ThinkPad® 365XD as low as $1999
3-Year TAP Warranty... $199.97
5-Year TAP Warranty... $299.97

ThinkPad® 365X & XD

- Up to Pentium 133MHz processors
- Up to 6X CD-ROM drive on 365XD
- 10.4" & 11.3" SVGA displays
- 16-bit sound, speakers and microphone
- Infrared port for wireless communications
- External floppy drive on 365XD

Call about 4.1 ThinkPad 560 models

Model	CPU	Screen	RAM/HD	CD	Price
365X	133MHz	11.3" Dual Scan	8MB/1.1GB	Opt.	$2299
365XD	120MHz	10.4" Active	8MB/1.1GB	6X	2499
365XD	133MHz	11.3" Active	8MB/1.4GB	6X	3499

Additional models available. Call for details

digital™

HiNoteVP & VP 500

HiNote VP as low as $1399
3-Year TAP Warranty... $149.97
5-Year TAP Warranty... $229.97

Model	CPU	Screen	RAM/HD	CD	Price
HiNote VP	100MHz	11.3" Dual Scan	8/810MB	Opt.	$ 1399
HiNote VP	120MHz	11.3" Dual Scan	8MB/1.08GB	Opt.	1499
HiNate VP	120MHz	11.3" Active	BMB/1.0BGB	Opt.	1999
VP 500	120MHz	11.3" Dual Scan	BMB/1.08GB	6X	2449
VP 500	120MHz	11.3" Active	BMB/1.0BGB	6X	2949
VP 500	133MHz	12.1" Active	8MB/1.44GB	6X	3599

Product differs slightly from photo

Digital HiNote VP 500

HiNote Ultra II

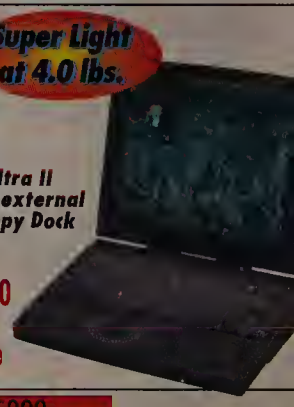
- Only 1.2" thick and 4.0 lbs!
- Up to 150MHz Pentium processors
- 11.3" Super VGA, Active Matrix displays
- 16MB of RAM memory

HiNote Ultra II as low as $4499
3-Year TAP Warranty..... $99.97
5-Year TAP Warranty... $599.97

Model	CPU	Screen	RAM/HD	CD	Price
Ultra II	133MHz	11.3" Active	16MB/1.35GB	Opt.	$4499
Ultra II	150MHz	11.3" Active	16MB/1.44G	Opt.	4799*
Ultra II	133MHz	11.3" Active	16MB/1.35GB	Opt.	4699**
Ultra II	150MHz	11.3" Active	16MB/1.44G	Opt.	4799

* Features Win for Workgroups, ** Features Win NT

Super Light at 4.0 lbs.


Ultra II with external Floppy Dock

Win NT 4.0 Models Available

COMPAQ

Presario Notebook

- Pentium 120MHz processor
- 6X CD-ROM drive
- 128-bit PCI graphics
- Built-in 33.6 fax modem
- Integrated PremierSound audio
- MS Works, Quicken and more!

Presario

Presario as low as $2499
3-Year TAP Warranty... $229.97
5-Year TAP Warranty... $349.97

Model	CPU	Screen	RAM/HD	CD	Price
1020	120MHz	11.3" Dual Scan	16MB/1GB	6X	$2499

LTE 5000

Model	CPU	Screen	RAM/HD	CD	Price
5250	120MHz	10.4" Active	16/810MB	Opt.	$3099
52B0	120MHz	11.3" Active	16MB/1.35GB	Opt.	3859
5300	133MHz	12.1" Active	16MB/1.35GB	Opt.	4349
53B0	133MHz	12.1" Active	16MB/2.2GB	Opt.	5439
5400	150MHz	12.1" Active	32MB/2.2GB	Opt.	5539 NEW

Call about value priced Armada Notebooks!

LTE 5000 as low as $3099
3-Year TAP Warranty..... $99.97
5-Year TAP Warranty... $459.97

LTE 5000

© 1996 PCs Compleat. All prices and specifications subject to change and do not include shipping. All products or brand names are trademarks of their respective companies. P Compleat, 34 St. Martin Drive, Marlborough, MA 01752-3021. Phone (508) 624-6400. Not responsible for typographical errors. All trademarks and registered trademarks are sole property of their respective owners. Lowest price guarantee applies to system purchases only.

ONLY at PCs COMPLEAT ✓ Low Price Guarantee ✓ Money Back Guarantee ✓ Free Tech Support ✓ Free Software Installation ✓ Free Configuratio

NOTEBOOK AROUND!

Call for a FREE PRODUCT GUIDE

We Carry Over 30,000 Products! Call Today!

PCs COMPLEAT
A COMPUSA® COMPANY
800-210-1404

NEC

NEC Versa 6200MX

- 166MHz Pentium processor with MMX™ technology
- 13.3" Active Matrix display
- 10X CD-ROM drive
- 64-bit PCI bus architecture

Model	CPU	Screen	RAM/HD	CD	Price
6200MX	166MMX	13.3" Active	32MB/2.0GB	10X	CALL

NEC Versa 6200

13.3" DISPLAY

Versa 6200MX CALL
3-Year TAP Warranty ...CALL
5-Year TAP Warranty .. CALL

CALL ABOUT VERSA 6000's

NEC Versa 4230

NEC Versa 4230

- Pentium 133MHz processor
- SoundBlaster Pro compatible audio with 2 speakers
- With VersaBay II for optional 2nd battery or CD-ROM
- Full-screen MPEG video, 4 audio ports and microphone

Model	CPU	Screen	RAM/HD	CD	Price
4230	133MHz	10.4" Active	BMB/1.0GB	6X	$2799

Versa 4230 $2799
3-Year TAP Warranty.....$ 99.97
5-Year TAP Warranty...$ 399.97

CALL ABOUT FANTASTIC SAVINGS ON NEC FACTORY REFURBISHED PRODUCTS.

SHARP

9020

Model	CPU	Screen	RAM/HD	CD	Price
9020	120MHz	12.1" Dual Scan	16MB/1.1GB	6X	$1999

Widenote

Model	CPU	Screen	RAM/HD	CD	Price
W100D	133MHz	11.2" Wide Dual Scan	16MB/1.1GB	Opt.	$2799
W100T	133MHz	11.2" SHA Wide Active	16MB/1.1GB	Opt.	3299

9020 as low as $1999
3-Year TAP Warranty..... $99.97
5-Year TAP Warranty... $299.97

Ask About Sharp's Super-Light Zaurus PDAs

Sharp 9020

HITACHI MOBILIZED COMPUTING

BUILT-IN 10BaseT LAN ADAPTER

Hitachi Mx™ Series Notebook

Hitachi E™

Model	CPU	Screen	RAM/HD	CD	Price
E100D	100MHz	11.3" Dual Scan	8/810MB	Opt.	$1499
E133DN	133MHz	11.3" Dual Scan	16/1.0BGB	Opt.	1799
E133T	133MHz	11.3" Active	16/B10MB	Opt.	2599

Hitachi Mx™

Model	CPU	Screen	RAM/HD	CD	Price
MX133T	133MHz	12.1" Active	16MB/1.35GB	8X	$4299
MMX166T	166MMX	12.1" Active	16MB/2.1GB	BX	5199

Additional M™ series models available. Call for details.

MX133T as low as $4299
5-Year TAP Warranty... $139.97

olivetti personal computers

Echos

Model	CPU	Screen	RAM/HD	CD	Price
Echos	100MHz	11.3" Dual Scan	8MB/1.3GB	6X	$1859
Echos	100MHz	10.4" Active	8MB/1.3GB	6X	2149
Pro	133MHz	12.1" Dual Scan	16MB/1.3GB	8X	3499
Pro	133MHz	12.1" Active	16MB/2GB	8X	3999
Pro	150MHz	12.1" Active	16MB/2GB	BX	4999

Olivetti Echos Notebook

6X CD-ROM

UP TO 150MHz PROCESSORS

Echos as low as $1859
3-Year TAP Warranty... $199.97
5-Year TAP Warranty... $299.97

AST® Authorized Reseller

Ascentia A

Ascentia A & P

Model	CPU	Screen	RAM/HD	CD	Price
A41	120MHz	11.3" Dual Scan	16MB/1.0GB	6X	$2199
A42	120MHz	12.1" Active	16MB/1.0GB	6X	2799
P50	133MHz	12.1" Active	24MB/1.0GB	6X	3699*
P50	133MHz	12.1" Active	24MB/2.1GB	6X	4299*

* Features 28.8 fax modem

Ascentia J

Model	CPU	Screen	RAM/HD	CD	Price
J55	133MHz	11.3" Active	16MB/1.0GB	Opt.	$2399

Ascentia A41 as low as $2199
3-Year TAP Warranty... $229.97
5-Year TAP Warranty... $349.97

AST, AST logo are trademarks of AST Research, Inc. All rights reserved.

TEXAS INSTRUMENTS

Extensa 600

Model	CPU	Screen	RAM/HD	CD	Price
600CD	120MHz	12.1" Dual Scan	8/810M8	6X	$1819

TravelMate 6000

Model	CPU	Screen	RAM/HD	CD	Price
6020	120MHz	11.3" Active	8MB/1.08GB	6X	$2699
6030	133MHz	12.1" Active	16MB/1.35GB	6X	3399
6050	150MHz	12.1" Active	16MB/1.35GB	6X	3699

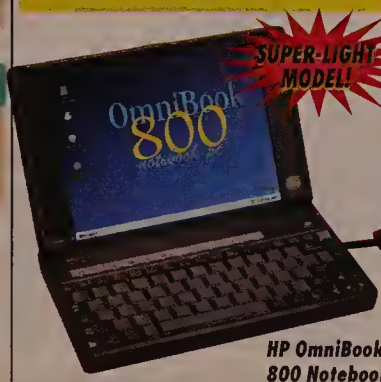
Extensa 600CD

Special Promo Price on 600CD

Extensa 600CD as low as $1819
3-Year TAP Warranty... $199.97
5-Year TAP Warranty... $299.97

HEWLETT® PACKARD

SUPER-LIGHT MODEL!



HP OmniBook 800 Notebook PC

HP OmniBook 800

Model	CPU	Screen	RAM/HD	CD	Price
800CS	100MHz	10.0" Dual Scan	16/810MB	Opt.	$2449
800CT	133MHz	10.4" Active	16MB/1.4GB	Opt.	4279

HP OmniBook 5500

Model	CPU	Screen	RAM/HD	CD	Price
5500CTS	120MHz	10.4" Active	16MB/1.35GB	Opt.	$3129
5500CTS	133MHz	12.1" Active	16MB/1.35GB	Opt.	4029
5500CTS	133MHz	12.1" Active	16MB/2GB	Opt.	4299

HP Omnibook 800CS as low as $2449
3-Year TAP Warranty..... $99.97
5-Year TAP Warranty... $349.97

Additional 5500 models available. Call for details.

More Brand Names, Peripherals and Software available. If you don't see it, CALL!

International: 508-624-6400
Email: sales@pcscompleat.com
Visit us at www.pcscompleat.com
Open 7am-Midnight weekdays. 8am-8pm weekends and holidays.

800-210-1404

Circle 129 on reader service card

PCs COMPLEAT®
A COMPUSA® COMPANY
800-210-1404

Call for a FREE PRODUCT GUIDE

We Carry Over 30,000 Products! Call Today!

COMPLEAT

✓ Guaranteed 2nd Day Delivery ✓ Money Back Guarantee

IBM®

IBM Business Partner

Aptiva S Multimedia

- Place tower up to 6ft. away
- 33.6 or 28.8 data/fax/voice modem with telephony
- Pentium MMX™ technology (on selected models)
- Integrated audio on optional monitor
- Vivid graphics with Total Image 3D™
- 3D stereo sound with Theater Sound™

Model	CPU	RAM/HD	CD	Price
S64	166MHz	16MB/2.5GB	8X	$1849
S76	200MHz	32MB/2.5GB	8X	1999*
S66	166MHz	16MB/3.2GB	8X	2169*
S80	166MMX	32MB/3.2 GB	8X	2399*
S90	200MMX	32MB/3.2 GB	8X	2599*

* Cordless mouse and joystick included

Aptiva S Monitors

Model	Size	View	Resolution	Price
MM50	15"	13.7"	1024 x 768	$499
MM70	17"	15.7"	1024 x 768	799

NEW MMX MODELS

Monitors priced separately

IBM Aptiva S Multimedia

Unique MediaConsole™ puts your CD-ROM, floppy and controls at your fingertips.

Aptiva S64 as low as $1849
3-Year TAP Warranty..... $99
5-Year TAP Warranty... $299

COMPAQ

Up to 16X CD-ROM

ULTRA FAST 33.6 SPEED DATA/FAX MODEM

We are Compaq Authorized

Monitors priced separately

Compaq Presario Multimedia

Presario Multimedia

- Up to 16X CD-ROM drives
- 3D surround sound with JBL Pro speakers
- Tons of FREE educational and business software
- 33.6 data/fax/modem
- Up to 3.8 GB hard drives

NEW MMX MODELS

Presario 4704 as low as $1549
3-Year TAP Warranty... $199.97
5-Year TAP Warranty... $299.97

Model	CPU	RAM/HD	CD	Price
4704	133MHz	16MB/1.6GB	6X	$154
4712	166MHz	24MB/2.5GB	6X	169
4716	200MHz	32MB/2.5GB	8X	199
4764	166MMX	24MB/2.5GB	16X	189
4770	200MMX	32MB/3.8GB	16X	229

Presario Monitors

Model	Size	View	Resolution	Price
Presario	14"	12.9"	1024 x 768	$399
Presario	15"	13.5"	1024 x 768	479
Presario	17"	15.6"	1280 x 1024	749

HEWLETT® PACKARD

16X CD-ROM

Monitors priced separately

HP Pavilion Multimedia Product differs slightly from photo

UP TO 200MHz PENTIUM

Pavilion 7320 as low as $1799
3-Year TAP Warranty... $199.97
5-Year TAP Warranty... $299.97

Pavilion Multimedia

- 16X CD-ROM drive!
- Up to 200MHz MMX Pentium processors
- Tons of FREE CD-ROM titles
- 33.6 data/fax modem with speaker phone
- 16MB or 32MB EDO RAM memory
- 3D stereo audio and graphics

Model	CPU	RAM/HD	CD	Price
7320	166MHz MMX	16MB/2.1GB	16X	$1799
7360	200MHz MMX	32MB/3.8GB	16X	2399

Monitors priced separately

TOSHIBA

Infinia Multimedia

3-D Surround Sound

- Up to 200MHz Pentium processors
- 8X CD-ROM drive
- 28.8 full duplex data/fax modem
- 2MB EDO video RAM
- Tons of FREE software

PC MAGAZINE EDITORS' CHOICE

UP TO 200MHz PENTIUM

8X CD-ROM

Model	CPU	RAM/HD	CD	Price
7130	133MHz	16MB/1.6GB	8X	$1299
7160	166MHz	16MB/2.1GB	8X	1599
7200	200MHz	16MB/3.0GB	8X	2199

Infinia Monitors

Model	Size	View	Resolution	Price
Infinia	15"	13.78"	1280 x 1024	$459
Infinia	17"	16.23"	1280 x 1024	759

InTouch™ Module. Jump from CD to TV to radio to answering machine, each with the touch of a button.
Standard on select models.

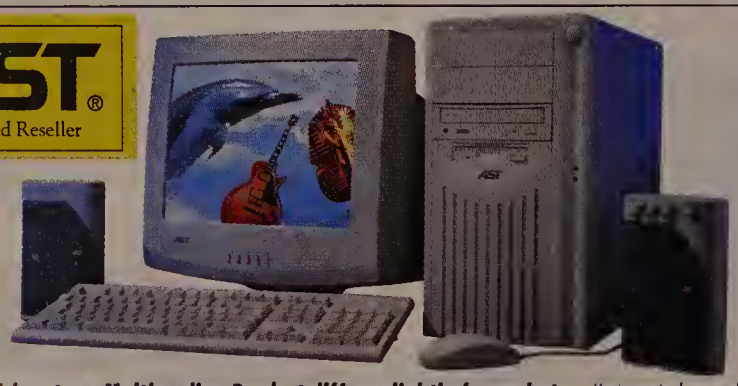
Infinia 7130 as low as $1299
3-Year TAP Warranty... $149.97
5-Year TAP Warranty... $229.97

Monitors priced separately

Toshiba Infinia Multimedia

AST®

Authorized Reseller



AST Advantage Multimedia Product differs slightly from photo Monitors priced separately

Advantage Adventure Multimedia

- Up to 200MHz MMX Pentium processors
- 16X CD-ROM drive
- MPEG Level 1 playback support
- 33.6 data/fax/voice modem
- 3-D graphics and sound
- Loads of FREE software

Model	CPU	RAM/HD	CD	Price
9402	166MHz MMX	32MB/2.0GB	16X	$1899
9406	200MHz MMX	64MB/4.0GB	16X	2799

Monitors priced separately

UP TO 200MHz PENTIUM

8X CD-ROM

Advantage 9402 as low as $1899
3-Year TAP Warranty... $199.9
5-Year TAP Warranty... $299.9

AST, AST logo are trademarks of AST Research, Inc. All rights reserved.

ONLY at PCs COMPLEAT ✓ Low Price Guarantee ✓ Money Back Guarantee ✓ Free Tech Support ✓ Free Software Installation ✓ Free Configuratio

SPECIAL OFFER!

PC WORLD

☐ **YES!** I want to receive the #1 monthly PC publication with award-winning articles, multimedia and Internet coverage, PC rankings, how-tos, tips & more!

I'll pay just $24.95 for 12 issues–65% off the annual newsstand rate.

Also, please rush my FREE CD-ROM!

NAME

COMPANY

ADDRESS

CITY / STATE / ZIP

Please allow 6-8 weeks for delivery of your first issue. Canadian and Mexican orders please add $20 USD per subscription for postage plus 7% GST (#R124669680). All other countries send $70.95 USD to PC World, P.O. Box 55029, Boulder CO 80322-5029. Printed in the USA. Savings based on newsstand rate of $71.40. 4MMX9

65% SAVINGS PLUS A FREE CD

PC WORLD Shareware CD-ROM

Loaded with over 100 great Shareware programs. This CD-ROM is yours absolutely FREE!

Plug into PC WORLD Online now!
http://www.pcworld.com

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST-CLASS MAIL PERMIT NO. 1262 BOULDER CO

POSTAGE WILL BE PAID BY ADDRESSEE

PC WORLD

SUBSCRIPTION DEPARTMENT
PO BOX 51833
BOULDER CO 80323-1833

SERVICE.

TAP TECHNOLOGY ASSURANCE PLAN

PCs Compleat's **Technology Assurance Plans** for systems and peripherals provide coverage above and beyond that offered by the manufacturer. Call Today!

PCs COMPLEAT®
A COMPUSA® COMPANY
800-210-1404

✓Free Software Installation ✓Free Tech Support ✓Free Configuration

Eiger 28.8 Fax/Modem with speaker

28.8 ONLY $49.99

28.8 PCMCIA fax/modem

#001013-0B

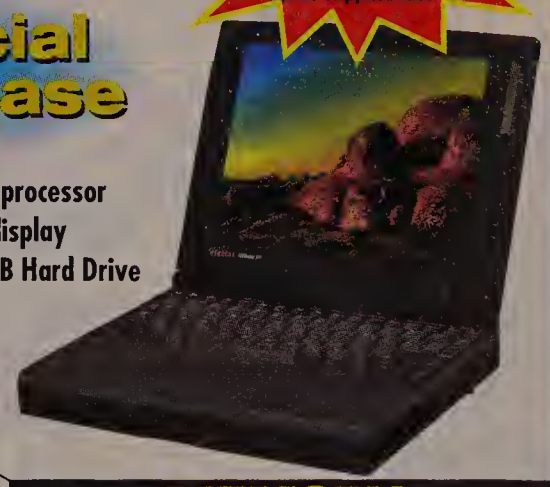
FR $149 #001013-0B Factory Refurbished

XJACK 10BaseT LAN Adapter

$99 #XJ10BTB FR

Digital HiNote VP Special Purchase

ONLY $1499 While supplies last



- Pentium 120MHz processor
- 11.3" Dual Scan display
- 8MB RAM, 1.08GB Hard Drive

#FR-PA6WF-AA

Eiger 28.8 PCMCIA Fax/Modem

WOW!

28.8 PC Card ONLY $99.95

Seagate 850MB Hard Drive

ONLY $139.99

Product differs from photo

Seagate ST3850A

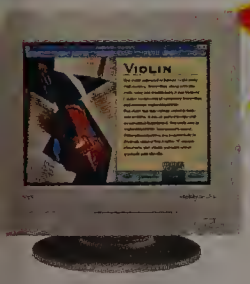
Western Digital 1.6GB Hard Drive

1600RTL

ONLY $199.95* *AFTER REBATE

NEC XV17

17" Monitor ONLY $599



TAP TECHNOLOGY ASSURANCE PLAN

JC-1734VMA-FR3C

3-Year Warranty Coverage FR

Canon BJC-4100 Color Printer

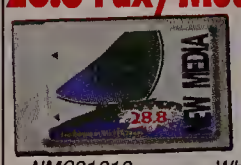
Factory Refurbished
Q30-1750-USI-FR
BJC-4100

FR

ONLY $169

Product differs slightly from photo

New Media WinSurfer 28.8 Fax/Modem



ONLY $99

NMC01010 While supplies last.

MEMORY BLOWOUT!

Generic 4MB Memory Upgrade
2x32, 72pin non-parity
$29.99
322-0060

Generic 8MB Memory Upgrade
2x32pin non-parity
$79.00
322-0001

Buy PNY Memory & Get Simply Tax FREE!!

Simply Tax

Generic 16MB Memory Upgrade
4x32, 72pin parity
$149.00
322-0002

WinCast/TV™

- Watch TV-in-a-window
- Simultaneously receive Internet Web pages over the TV airwaves with the exciting new Intercast System

ONLY $99

(in areas where available) # 00400

WinCast TV with Dolby DBY Stereo Sound .....#00401 ...$139.00

NEC Versa 4050H

FR

10.4" Active Matrix $1449

Factory Refurbished
Product shown with optional CD
PC-6110-71602-R

DESCRIPTION
Pentium 90, 8MB, 810MB

KAO Diskettes 50 Pc. Value Pack

Includes a 100 Diskholder FREE!

FREE* *AFTER REBATE 32953

Reg. $12.00
While supplies last.

IIVAL CD-ROM Drives

X CD-ROM Drive
IA63-00R2 ..... $89

10X CD-ROM Drive
PCS10A-00R2 ..... $159

X CD-ROM Drive
SSBA-36R2 ..... $129

10X Multimedia Upgrade Kit
PCS10A-01R6 ..... $249

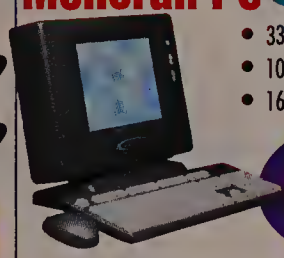
X Multimedia Upgrade Kit
SSBA-01R6 ..... $179

10X as low as $159.00

Monorail PC

monorail

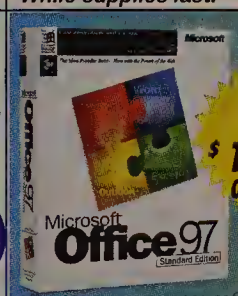
- 33.6 fox modem
- 10.4" duol scon color display
- 16-bit stereo sound



COMPLETE SYSTEM AS LOW AS $999.00

DESCRIPTION	PART #	PRICE
K5-75MHz, 16MB, 1.0GB, 4X CD	7245	$ 999.00
P133, 16MB, 2.1GB, 4X CD	133	1299.00

Office Upgrade



ONLY $179.99* 021-00703

Office 97	021-00691	$ 439.99
Office 97 Upgrade	021-00703	179.99*
OfficePro 97	353-00005	539.99
OfficePro 97 Upgrade	353-00014	279.99*
OfficePro97 Upgrade with IntelliMouse	528-00072	299.99*

* Price after manufacturer's rebate.

$75 in FREE help!

Buy Microsoft Office 97 at PCs Compleat and you also get ...

$75 worth of FREE Assistance
An exclusive offer from PCs Compleat

Olsten Staffing Services® CHOOSE EITHER kinko's Microsoft

Limit 10 per user site. All services must be used prior to June 30, 1997. Not redeemable for cash.

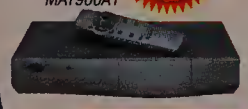
Explore the Internet through your TV!

The fast & easy way to explore the Internet

- It's as easy as using a remote control
- Quick and easy setup – simply connect WebTV to your TV and phone line

ONLY $329*

MAT960A1



ONLY $59*

MWK100BK

- WebTV Internet Unit .... MAT960A1 ..... $ 329.00
- WebTV Keyboard ..... MWK100BK 59.00

* Price does not include required monthly WebTV access fee. Call for details.

All you need is a TV & phone line to surf the Web!

PHILIPS MAGNAVOX

Linksys Network in a Box

Connect two PCs for only $89.00

LNEPCISK

LINKSYS

Sony QIC-80 2 pack

- QIC-80 format
- 120MB capacity

FREE* *AFTER REBATE

SONY While supplies last.

Mag Innovision DX1795E, 17" Monitor

- 17", 1280x1024ni, .28mm (16.1" viewable)
- EPA & MPRII compliant
- Comes with MAC adapter
- 1-year warranty

ONLY $529

Product differs slightly from photo

Maxtor 2GB Hard Drive

Product differs slightly from photo

ONLY $239.95* *After $30 mail-in rebate

Limit two per customer. Call for details!

K0172000A

Tru-Photo™ Digital Photo Printer

Print real photos from any digital image!

ONLY $429.00

Panasonic

AL-TA10U

TruPhoto™ Paper ....AL-TP1U ....$ 14.95

More Brand Names, Peripherals and Software available. If you don't see it, CALL!

International: 508-624-6400
Email: sales@pcscompleat.com
Visit us at www.pcscompleat.com
Open 7am–Midnight weekdays. 8am–8pm weekends and holidays.

800-210-1404

Circle 129 on reader service card

BEST Service! LOWEST Prices

CALL FOR FREE CATALOG!

LOWEST PRICES!
SUPER SERVICE!
FASTEST DELIVERY!

FREE Technical Support!

FREE System Customization Overnight!

FREE Catalog Subscription!

FREE Memory Installation Offer!

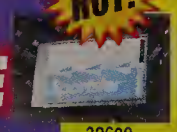
MORE Exciting Bundles!

MORE Hot New Products!

ALWAYS Available! Knowledgeable Sales Reps.

ALWAYS Open! 24 Hrs. a Day

HOT! STAY CONNECTED!



ONLY! $189.95
Sportster V.34
- 28.8k data, 14.4K fax, 115.2K transfer rates
- 33.6Kbps upgradeable

32600

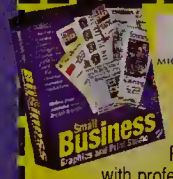
HOT!

Microsoft MANIC MARBLES

3D, multi-player game that delivers frantically insane gameplay and unique Revenge Controls that let you control playing field features.

ONLY! $34.95 36961

NEW!



MICROGRAFX

ONLY! $79.95 36281

Provides small businesses with professionally designed content, project wizards, and graphics tools all designed to make small and homebased business look bigger and better.

NEW!

Canvas 5 Upgrade
Unlimited levels of undo and Instant 3D extrusion. More than 30 file import and export filters!
UPGRADE ONLY! $149.95 31386

FREE DISK!

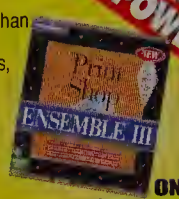
Fuji 100MB Zip Disks

1 FREE zip disk

Stock up on Storage Solutions!
Buy five high-capacity Fuji Zip Disks and get a *6th FREE* by mail.
ONLY! $74.95 36272

CREATIVE POWER!

The Print Shop Ensemble III includes more than 5500 graphics, 1000 quotations, phrases, and verses, 1000 customizable ready-made designs ad 100 PhotoDisc Images.



Broderbund

ONLY! $52.95 32106

GREAT PRICE!

Speedy 33.6 Faxmodem with throughput up to 134,400 bps. Free data/fax/voice & Netscape Navigator Software

33871

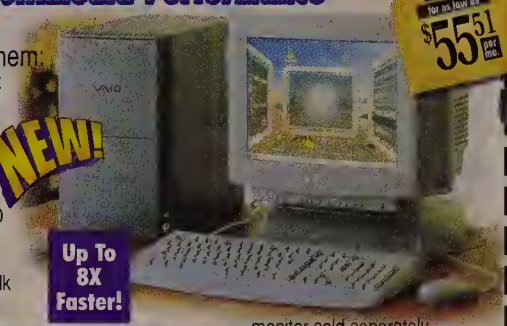
ONLY! $109.95*

*Price after $20 rebate

MMX Pentium– Raising the Bar on Multimedia Performance

SONY

The Home Computer as Only Sony Can Design and Build Them:
- Your choice: very affordable, very fast Pentium processors or the new MMX Pentiums optimized for multimedia
- Fast 32MB of EDO RAM
- Huge, fast-access hard drives up to 2.5GB
- Stunning graphics w/ 2MB of RAM 3D video processor, full MPEG support
- Blazing 8X CD-ROM drive
- Voice/data/fax 28.8 DSVD modem–talk and transmit data simultaneously



NEW!

Up To 8X Faster!

BUSINESS LEASE for as low as $55.51 per mo.

PCC Item#	Model	Processor/ Speed	Hard Drive	Cache	CD-ROM	Modem	Price
36071	PCV-70	166MHz	2.1GB	256K	8X	28.8/14.4	$1599
36072	PCV-90	200MHz	2.5GB	256K	8X	28/8/14.4	1799
36966	PCV-100	166MHz	2.5GB	256K	16X	33.6/14.4	1999
36967	PCV-120	200MHz	3.8GB	256K	16X	33.6/14.4	2399

monitor sold separately
AS LOW AS $1599 36071

Finally a Fast Hard Drive That's Never FULL!

CASH BACK $55

*Now with $55 rebate, good through 2/28/97

ONLY $239

Syquest EZFlyer 230 Removable Drive 30183

It combines the flexibility of 3.5" 230MB removea media with the speed of a true hard drive.
- 13.5ms average seek time
- Up to 2.4MB/second sustained transfer
- Sealed drive door protects against dust
- Add cartridges as you need them, as just penn per megabyte!

Beautiful Digital Photo Images– Just Snap, Connect and View!

NEW!

ONLY $529.95

Nikon ELECTRONIC IMAGING 34166

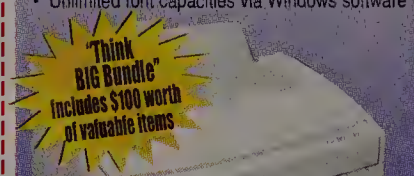
Nikon COOLPIX 100 Digital Camera

Offers an ultra-slim, ultra-light digital camera that delivers brilliant 24-bit color images. Connect into your portable computer's PC card drive and download the JPEG images for viewing and manipulating.

Okidata OkiPage4W

The tiny laser with the BIG results!
- Easy to Afford, Set up, and Own
- Handles envelopes, labels, and transparencies from 3.4" x 4.4" to 8.5' x 14' – or use the 100 sheet autofeeder
- Unlimited font capacities via Windows software

"Think BIG Bundle" includes $100 worth of valuable items



ONLY $299.95

OKIDATA 29991

Toshiba Satellite 110CS, 110CT and 200CDS

Affordable 100Mhz Pentium Performa

- Brilliant 11.3" color display
- 8MB EDO RAM, exp. to 40MB; 772MB HDD
- 6X CD-ROM (Satellite 200)
- Integrated AC adapter

BUSINESS LEASE for as low as $53.74 per mo.

AS LOW A $1548 30435

Item #	Description	RAM/HD	Pri
30435	Satellite 100CS	8/40MB/772MB	$154
30436	Satellite 110CT	8/40MB/772MB	199
34737	Satellite 200CDS	8/40MB/772MB	19

TV on your PC! PC on your TV!

ADS

ONLY! $299.95 24348

ADS TV Superscan 2

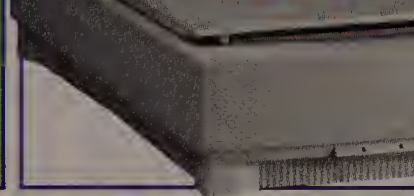
Converts SVGA data in resolutions up to 1024 x 768 into a NTSC video signal. It works on any VGA-compliant platform and requires no software drivers for the video conversion.
- Broadcast quality output (RS-170) video for broadcasting
- Multi-scan automatically adjusts to input frequency; horizontal scan rates from 24 to 48 kHz, vertical can from 60 to 75Hz.
- Plug and Play

GET OVER 10,000 HOT PRODUCTS 24 HOURS A DAY!

You've Got to See It in EPSON Color!

EPSON EXPRESSION 636

Offers image quality and performance you'd expect to find only in high-end graphic scanners!
- 36-bit internal color (24-bit external)
- 4800 dpi maximum resolution (600 dpi optic
- Auto Area Segmentation and Text Enhance Technology



NEW!

AS LOW AS $899

FREE BUNDLED SOFTWAR
- Adobe Photoshop LE
- e.Paper Document Management and Archival Suite
- Epson Scanning Utilities and SCSI cable

34332

LEASE YOUR COMPUTER EQUIPMENT — SAVE YOUR CAPITAL! CALL TO SEE IF YOU QUALIF

OUR POLICY • VISA, MASTERCARD, AMERICAN EXPRESS, and NOVUS cards. No surcharge. • Most products are covered by manufacturer's warranty against defects for at least 30 days from the invoice date. • All returns require prior authorization; please call for an RMA • We are not responsible for typographical errors. • Pricing and promotions are subject to change without notice. **Continental U.S.:** Shipping Charges: $5 per order up to 10 pounds. On orders weighing 10 pounds or more, shipping is $1 per pound. Please call for weight/shipping charge information. Items of excessive size and/or weight may require additional days to deliver via a freight carrier. Please check with your sales rep for more details. Barring events beyond our control, all credit card orders phoned in weekdays a.m. ET will ship Airborne Express for delivery the next business day. Saturday delivery available to many a upon request at no additional charge. Order all day Saturday thru noon Sunday for Monday delivery. Some a require an extra day delivery. **APO/FPO, International orders and Hawaii, Alaska, Canada, Puerto Ric U.S. Virgin Islands:** Shipping may raquire additional time and charges. All other areas: Call 603-446-000 FAX 603-446-7791 M-F 9 a.m.-5:30 p.m. ET.

©1996 PC Connection, Inc., Marlow, NH. PC Connection & the raccoon characters are registered trademarks of PC Connection, Inc.
All other trademarks remain the property of their respective companies.

PC WORLD WORLD CLASS 1996 · 1995 · 1994 · 1992 · 1991 · 1990

VOTED BEST MAIL-ORDER!

"Best Mail-Order Company!"

BCS THE BOSTON COMPUTER SOCIETY

EVERYTHING OVERNIGHT $5! (UP TO 10LBS)

HOT DEALS ON SYSTEMS! CALL: 800-800-CPUs(2787)!

SERVICE • SAVINGS • SELECTION!

- FREE Technical Support
- FREE System Customization
- More Hot New Products
- More Systems
- FREE Memory Installation
- FREE Catalog Subscriptions
- More Bundles
- Save Up To 60% Off Retail

Work Hard, Travel Light, Last Longer!

AcerNote Nuovo

- Special technology extends battery life 40%
- 16MB EDO RAM, exp. to 64MB, 256KB cache memory
- 11.3" dual scan or 11.8" active matrix color display
- 1.3GB enhanced IDE hard drive
- Removable 6X CD-ROM and 1.44MB diskette drives

40% Longer Battery Life!

AS LOW AS $3298

32489

3 year warranty ON ALL AcerNote NOTEBOOKS

Acer

PCC Item#	Model	Processor/ Speed (MHz)	Hard Drive	RAM Std/Max	CD	Price
32489	Nuovo 972	Pentium/133MHz	1.3GB	16MB/64MB	6X	$3298
32490	Nuovo 971	Pentium/133MHz	1.3GB	16MB/64MB	6X	3798

BUSINESS LEASE for as low as $114.48 per mo.

ThinkPad 760E Series!

Think Portable Multimedia Power

AS LOW AS $2349

FREE Lotus SmartSuite

28728

Think About ALL You Get

- Powerful Pentium Processors
- Windows 95 preinstalled
- Big, bright, 12.1" TFT SVGA (800 x 600)display or 11.3" DSTN SVGA
- 8 or 16MB EDO RAM, upgradeable to 72 or 80MB
- High capacity removable hard drive
- DSP subsystem for audio, games, music
- UltraBay modular expansion bay
- Dual Infrared transceivers for wireless data transfer
- Lithium ion battery with dual battery support
- Auto tilt keyboard with palm rest, TrackPoint III pointing device

BUSINESS LEASE for as low as $81.54 per mo.

PCC Item#	Model	Processor/ Speed	Hard Drive	RAM Std./Max.	Display	CD-ROM	Price
28728	9547-U6G	Pentium/100	810MB	8/40MB	11.3" DSTN SVGA	opt.	$2349
28727	9547-U6F	Pentium/120	810MB	8/40MB	11.3" DSTN SVGA	opt.	2498
32968	9547-U6H	Pentium/120	1.3GB	8/72MB	11.3" DSTN SVGA	opt.	2698
28723	9547-U4F	Pentium/120	1.08GB	8/40MB	12.1" TFT SVGA	opt.	4098
28722	9547-U4H	Pentium/133	1.08GB	8/40MB	12.1" TFT SVGA	opt.	4298
32967	9547-U4G	Pentium/133	2.1GB	16/80MB	12.1" TFT SVGA	opt.	4998
28716	9546-U3A	Pentium/133	1.2GB	16/40MB	12.1" TFT SVGA	4X int.	5198
32963	9546-U9A	Pentium/133	2.1GB	16/80MB	12.1" TFT SVGA	6X int.	5898
32966	9546-U9B	Pentium/150	2.1GB	16/80MB	12.1" TFT SVGA	opt.	5398

IBM Business Partner

Face Off with a NEW HITACHI Notebook

Hitachi E-Series Notebooks

- Robust 100 or 133 Mhz Pentium Processor
- 8 or 16MB high-speed EDO RAM*
- Generous 810MB or 1.0GB hard drive
- Large 11.3" full color display
- Cellular Ready 28.8 Kbps U.S. Robotics PC Card faxmodem on some models

Customize Your Hitachi E Notebook! 6X External CD-ROM Drive or a 28.8 U.S. Robotics Fax Modem For ONLY $99

AS LOW AS $1599

Pentium Processor · 16MB of RAM · Large 11.3" Full Color Screen

PCC Item#	Model	Processor/ Speed (MHz)	Display	Hard Drive	RAM Std/Max	Modem	Price
31922	E-P100 D	Pent./100	Dual/11.3"	810MB	16/40MB*	28.8	$1599
35442	E-P133 DN	Pent./133	Dual/11.3"	1.0GB	16/40MB	–	1799
36744	E-P133 D	Pent./133	Dual/11.3"	1.0GB	16/40MB	28.8	1899
36746	E-P133 DC	Pent./133	Dual/11.3"	1.0GB	16/40MB	–	1899
36748	E-P133 T	Pent./133	TFT/11.3"	1.0GB	16/40MB	28.8	2399
36749	E-P133 TC	Pent./133	TFT/11.3"	1.0GB	16/40MB	–	2399

BUSINESS LEASE for as low as $55.51 per mo.

HITACHI MOBILITY COMPUTING

Texas Instruments Extensa Series

Extensa 600CD

- 120Mhz Pentium, PCI bus
- 8 MB EDO RAM, upgradeable to 64MB
- 810MB removeable hard drive
- Fixed 6X CD-ROM, external FDD
- 16-bit sound with stereo speakers

120MHz Pentium

ONLY $1898

34175

Texas Instruments

Item#	Speed	RAM	CD-ROM	Price
29754	Pentium/75Mhz	8MB/40MB	4X	$1698
34175	Pentium/120Mhz	8MB/40MB	6X	1898

FREE! MEMORY INSTALLATION!

1MB SIMMS as low as $19.95

SUPER SIMMS PRICES!

4MB	8MB	16MB	32MB
as low as $29.95	as low as $59.95	as low as $129.95	as low as $249.95

Purchase a computer & memory upgrade together and we'll install your new memory upgrade at no extra charge!

Introducing the Feature-Packed, High Performance, Value-Oriented SENS PRO 500 Series!

AS LOW AS $1699

150MHz

LEASE FOR $58.98† PER MONTH

34103

- Up to 150MHz Pentium Processor
- 11.3" dual scan or 12.1" active matrix
- 8 or 16MB MBH speed EDO DRAM
- up to 6x CD-ROM
- 28.8 faxmodem on some models

SAMSUNG

Item #	Processor	HD	RAM	CD	Price
34103	Pentium 100	1.08GB	8/72MB	Opt.	$1699
34104	Pentium 120	1.44GB	16/80MB	Opt.	2699
35356	Pentium 133	1.44GB	16/80MB	6X	2999
35359	Pentium 150	2.1GB	16/80MB	6X	3799

Psion Series 3c

The Psion Series 3c is a fully functional computer, complete with a preemptive, multi-tasking operating system that's fast, expandable , and windows-driven.

NEW! 36513

ONLY $499

- Weighing in at under ten ounces
- Sized to slip into a pocket
- Prints out to virtually any printer
- Built in applications like Microsoft Word, Excel and Lotus

PSION SERIES 3c

FREE! CATALOG SUBSCRIPTION! CALL TODAY!

(Mention source code 397PCW)

❑ PC Connection ❑ MacConnection

Please check the catalog(s) you wish to receive

Name _____

Address _____ Apt ____

City _____ State _____ Zip _____

† Leasing option available to businesses. CALL 800-800-0014 to see if you qualify

PC Connection®

SOURCE CODE 397PCW **800-800-0052**

Circle 165 on reader service card

Order as late as 3 a.m. ET and *still* get Overnight Delivery!

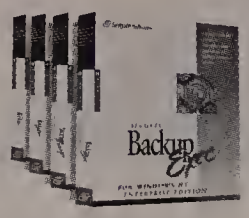
FAX US AT: 603-446-7791

CDW CIRCLE OF SERVICE

COMPUTER DISCOUNT WAREHOUSE™

Seagate Software
Backup Exec V6.11
For Windows NT

▲ Automates unattended scheduled backups for all servers and workstations ▲ Performs remote administration with Windows NT Remote Access Services (RAS) support ▲ Includes built-in STAC-LZS software data compression ▲ Runs multiple jobs simultaneously with multi-drive concurrent backup capabilities ▲ Offers both client and server support: DOS, all flavors of Windows, OS/2, NetWare V3.x and V4.x, Macintosh and UNIX ▲ Compatible with all devices supported by Windows NT



Single Server Edition **$429.83** CDW 73810

Enterprise Edition **$819.15** CDW 73809

WHY PAY RETAIL?
CDW® Sells For Less!™

U.S. Robotics®
Bigpicture Video Kit

High quality color camera, video modem and capture card

With the U.S. Robotics Bigpicture™ Video Kit, you can have a true videophone in your own home. The Kit's powerful color camera and 33.6K bps voice/video faxmodem let you see and speak clearly with people on the other end (other end of connection must also be camera-equipped to see called party). Just think of the fun you'll have—you'll finally be able to see people you've only known through e-mail. Capture video clips or snap favorite photos into your PC to create an electronic album. Then use the U.S. Robotics 33.6K bps modem and the software in this kit to send memorable images to friends and family.

$359.67 CDW 79403

HARDWARE, SOFTWARE & PERIPHERALS AT DISCOUNT PRICES

NETWORKING PRODUCTS

Novell

IntranetWare Upgrades
5-user CD 328.53
10-user CD 579.32
25-user CD 979.32
50-user CD 1245.68
100-user CD 1869.03
250-user CD 3349.95

IntranetWare
5-user CD 665.62
10-user CD 1389.96
25-user CD 2289.38
50-user CD 3284.31

Microsoft

Windows NT Server V4.0
Upg + 5-client license CD 377.15
Upg + 10-client license CD 499.73
Comp upg + 5-client license CD 378.82
Comp upg + 10-client license CD 508.26
Server + 5-client license CD 746.28
Server + 10-client license CD 1029.76
Single-client license upg 17.19
Single-client license 34.32

Windows NT Workstation V4.0
Version upg CD 129.53
Single-client upg 239.49
Full version CD 279.20

3Com
3C900 EtherLink XL PCI 10BT 109.16
3C900 EtherLink XL PCI 10BT 5-pack 478.50
3C900 Ethernet XL PCI combo 129.85
3C900 Ethernet XL PCI combo 5-pack 586.64
3C905 Fast EtherLink XL PCI 10/100BT 136.95
3C905 Fast EtherLink XL PCI 10/100BT 5-pack 606.42
OfficeConnect 8-port hub 114.79
OfficeConnect 8-port hub, BNC port 147.19
SuperStack II Hub 12-port 10BT 509.66
SuperStack II Hub 24-port 10BT 849.26
SuperStack II Hub 12-port 100BT 1247.21
SuperStack II Switch 1000 12-port Enet 1989.70
SuperStack II Switch 1000 24-port Enet 2498.60

Cisco Systems
CiscoPro CPA761 access router ISDN 479.58
CiscoPro CPA766 access router ISDN 614.74
Cisco CPA1603 Ethernet/ISDN router 1136.02
NetBeyond FastHub CPW316T 16 ports 1777.18
NetBeyond EtherSwitch 1220 10/100BTX 2959.79
NetBeyond CPA3640 modular access router 4954.83

COMPAQ
Netelligent 10BT PCI controller 99.25
Netelligent 10/100BTX PCI controller 138.45
Netelligent 2000 8-port 10BT repeater 477.16
Netelligent 2000 16-port 10BT repeater 554.67
Netelligent 5000 10/100BTX 6-port switch 1018.77

Hewlett Packard
DeskDirect 10/100Mbps PCI 149.65
JetDirect ethernet 10BT 309.33
JetDirect EXPlus print server, external 294.64
JetDirect EXPlus3 print server, external 459.84
AdvanceStack 10BT switching hub 12R 554.47
AdvanceStack 10BT switching hub 24R 949.86

intel
EtherExpress PRO/10+ PCI combo 134.03
EtherExpress PRO/10+ PCI combo 5-pack 549.34
EtherExpress PRO 100 PCI 129.64
EtherExpress PRO 100 PCI 5-pack 589.28
Express 100BTX 12-port stackable hub 1549.82
Express 100BTX switching hub 3185.23
NetPortExpress PRO Enet internal 268.53
NetPortExpress PRO Enet external 367.14

NETWORKING PRODUCTS

LINKSYS
Combo Ether16 LAN card 35.53
Combo EtherPCI LAN card 66.12
Combo PC/Ethernet card 10BT 92.23
PC Card LANmodem 10BT 287.22
EtherFast 10/100BTX LAN card 92.23
EtherFast 100BTX 12-port hub 1089.03
10BT 5-port workgroup hub 59.61
10BT 10-port workgroup hub 105.65
10BT 20-port workgroup hub 179.81

Seagate Software

Backup Exec V6.11 for Windows NT
Single server edition 429.83
Enterprise edition 819.15

Backup Exec V7.11 for NetWare
Single server edition, 25-users 309.78
Single server edition, unlimited users 437.27
Enterprise edition 879.52

SMC®
EtherEZ 5T 10BT hub 86.00
EtherEZ 8TC 10BT hub 149.97
EtherEZ 16TC 10BT hub 344.12
EtherEZ 10BT ISA 92.03
EtherEZ 10BT ISA 5-pack 369.03
EtherPower 10BT PCI 117.39
EtherPower 10/100BTX PCI 134.33
TigerStack 10BT 12-port hub 489.58
TigerStack 10BT 26-port hub 858.25

Xircom
CreditCard Ethernet 10/100 upgradeable 139.23
CreditCard Ethernet 10/100 ....174.06
CreditCard Ethernet +Modem 33.6 MiniDock 309.52
CreditCard Ethernet+Modem 33.6 10BT 309.51
CreditCard Ethernet +Modem 33.6 combo 334.50

DATA STORAGE

iomega
Zip drive 100MB parallel 199.95
Zip drive 100MB external SCSI 199.95
Zip drive 100MB internal SCSI 199.95
Ditto Easy 800MB Travan Internal 99.95
Ditto Easy 800MB Travan external 149.95
Jaz drive 1GB internal SCSI-2 ....399.95
Jaz drive 1GB external SCSI-2 ....499.95
Jaz drive 1GB cartridge 124.95
Ditto drive 2GB internal 149.95
Ditto drive 2GB external 199.95
Ditto drive 2GB cartridge 19.95
Ditto drive 2GB cartridge 3-pack 59.95
Ditto Dash Card 59.95

Pinnacle Micro
RCD 4x4 recordable CD system internal 849.94
RCD 4x4 recordable CD system external 945.54
Apex 4.6GB optical hard drive internal 1487.26
Apex 4.6GB optical hard drive external 1487.26

MicroSolutions
backpack pd/cd 650MB rewritable 547.31
backpack 8000t 8GB tape backup 536.95

PHILIPS
CCD2600 CD recorder internal 699.00
CCD2600 CD recorder external 799.00

SyQuest
EZFlyer 230MB SCSI external 289.47
EZFlyer 230MB external 289.47
EZFlyer 230MB cartridge 29.39
SyJet 1.5GB SCSI internal 399.00
SyJet 1.5GB SCSI external 499.00
SyJet 1.5GB parallel external 529.00

MULTIMEDIA

ADS Cadet AM/FM stereo data receiver 66.15
ADS Elite Pro w/remote mouse 197.48
ADS TV Superscan 2 PC to TV converter 289.13
Microsolutions 4X CD parallel 219.67
Microsolutions 8X CD parallel 337.55
NEC 6Xi 6X CD internal 239.82
NEC 8Xi 8X CD internal SCSI-2 ....227.17
NEC 8Xe 8X CD external SCSI-2 ....308.75
Panasonic 10X 5-CD changer internal 249.00
Panasonic portable 8X CD w/spkrs 399.00
Panasonic portable 4X CD SCSI 299.00
Sony portable 4X CD Discman 299.98
SunMoonStar 8X CD internal IDE/ATAPI 135.24
SunMoonStar 8X CD portable 269.88
Yamaha YST-M15 10-watt speakers 69.63
Yamaha 45-watt satellite/subwoofer 169.85

INPUT DEVICES

Adesso NU-Form Basic keyboard 39.73
Adesso NU-Form keyboard/touchpad 67.98
AGFA SnapScan scanner 358.33
AGFA ePhoto 307 digital camera 529.63
Alps Desktop GlidePoint 66.86
Alps GlidePoint Wave keyboard/touchpad 65.93
Alps GlidePoint Windows 95 keyboard 95.58
Calcomp Drawing Slate II 6x9 w/press pen 195.34
Calcomp Drawing Slate II 12x12 w/press pen 314.14
Casio QV-10A Plus digital camera 395.63
Casio QV-100 digital camera 586.90
Casio QV-300 digital camera 659.57
Connectix QuickCam 97.36
Connectix Color QuickCam 219.91
Epson PhotoPC digital camera 399.00
Epson PhotoPC 500 digital camera 499.00
Epson ActionScanning System II 376.41
Epson Expression 636 Exec scanner 849.57
Hewlett Packard ScanJet 4s 198.41
Hewlett Packard ScanJet 4p 499.90
Hewlett Packard ScanJet 4c 857.90
Intel Smart Video Recorder III 169.16
Kodak Snapshot Photo Scanner 1 ....199.00
Kensington Mouse-in-a Box 26.26
Kensington Expert Mouse V5.0 PS/2 ....94.53
Kodak DC20 Digital Science Camera 199.00
Kodak DC25 Digital Science Camera 499.00
Kodak DC50 Digital Science Camera 899.00
Logitech MouseMan 96 ....55.51
Logitech Cordless MouseMan 96 ....61.22
Logitech SurfMan Internet controller 84.58
Logitech TrackMan Marble 84.76
Logitech PageScan Color Pro 307.76
Microtek PageWiz compact scanner 98.17
Microtek ScanMaker E3 color flatbed 309.26
Microtek ScanMaker E6 std color flatbed 556.72
Microtek ScanMaker 35t Plus 729.66
Nikon AX-110 Scantouch scanner 286.83
Nikon Coolpix 100 digital camera 506.47
Play Snappy video still capture 195.97
Polaroid SprintScan 35/LE scanner 779.41
Polaroid 2000/40 digital camera 3209.20
Ricoh RDC-2 digital camera 999.00
Ricoh RDC-1 digital camera 1999.00
UMAX PageOffice Color scanner 239.88
UMAX Vista-S6E scanner 289.93
UMAX Vista-S12 scanner 709.21
UMAX PowerLook II scanner 1877.36
Visioneer PaperPort Vx scanner 277.21
Visioneer PaperPort ix scanner 289.92
Wacom ArtPad 4x5 graphics tablet 139.95
Wacom ArtZ II 6x8 graphics tablet 296.73

MONITORS

Mag Innovision 410V 14" .28mm 228.33
Mag Innovision 510V 15" .28mm 308.75
Mag Innovision 710V 17" .28mm 517.21
Mag Innovision DJ702e 17" .28mm 619.80
Magnavox CM2089 14" .28mm 235.02
Magnavox CM2099 14" .28mm 248.84

MONITORS

Magnavox CM2015 15" .28mm 299.87
Magnavox CM1215 15" .28mm 316.80
Magnavox 107B 17" .28mm 599.55
Magnavox 20CM64 20" .31mm 849.00
Magnavox CM5600 20" .27mm 1129.83
NEC M500 15" .25mm 375.29
NEC XV15+ 15" .28mm 375.29
NEC XV17+ 17" .28mm 699.16
NEC M700 17" .25mm 778.52
NEC P750 17" .25mm 1019.73
NEC P1150 21" .28mm 1939.47
Princeton E050 15" .28mm 329.28
Princeton E070 17" .28mm 546.07
Sony Multiscan 100sx 15" PnP .25mm 377.64
Sony Multiscan 100sf 15" PnP .25mm 449.49
Sony Multiscan 200sf 17" .25mm 747.36
Sony Multiscan 17sell 17" PnP .25mm 929.76
Sony Multiscan 300sf 20" PnP .30mm 1565.46
Sony Multiscan 20sell 20" .25mm 1789.42
ViewSonic 15GSIII 15" .27mm 359.49
ViewSonic 17GS 17" .27mm 616.79
ViewSonic G810 21" .25mm 1417.89
ViewSonic P810 21" .25mm 1469.44
ViewSonic PT810 21" .30mm 1634.19
ViewSonic P815 21" .25mm 1669.80

VIDEO BOARDS

ATI Video Xpression+ PCI 2MB 98.87
ATI TV Tuner 108.42
ATI 3D Xpression+ PC2TV 2MB PCI 155.72
ATI 3D Xpression+ PC2TV 4MB PCI 179.16
ATI 3D Pro Turbo PC2TV 4MB PCI 229.86
Diamond SpeedStar64 2200 2MB ISA 94.84
Diamond Stealth 3D 2000XL 4MB PCI 176.43
Diamond Stealth 3D 3000XL 2MB PCI 215.63
Diamond Stealth 3D 3000XL 4MB PCI 259.20
Matrox Mystique PCI 2MB WRAM 167.71
Matrox Millennium PCI 2MB WRAM 179.31
Matrox Millennium PCI 4MB WRAM 249.15
Truevision Bravado 1000 PCI 626.12
Truevision Targa 1000 PCI 2488.50
Truevision Targa 2000 PCI 3909.79
Truevision Targa 2000 DTX PCI 5559.31

OVERDRIVE PROCESSORS

intel

OverDrive Pentium Processors
63MHz 138.66
83MHz 189.27
120/133MHz upg for 5/60, 5/66 ....249.45
125MHz upg for 5/75 ....259.24
150MHz upg for 5/90 ....319.20
166MHz upg for 5/100 ....456.23

PC CARDS

3Com LAN PC Card-TP 10BT 135.44
3Com LAN PC Card combo 179.64
3Com 33.6 10BT LAN+modem 299.21
3Com 33.6 10BT LAN+modem combo 336.08
Hayes OPTIMA 336 w/EZjack 206.42
Megahertz Ethernet adapter w/XJACK 119.07
Megahertz 33.6 cellular 248.93
Megahertz 33.6 cellular w/XJACK 248.93
Megahertz Courier 33.6 ....259.67
Motorola Montana 33.6 ....226.29
Motorola Montana 33.6 cellular 249.16
Motorola Mariner 33.6 ....367.37
New Media PC Card joystick adapter 58.86
Simple Ethernet 10BASE-T 83.30
Simple 33.6 cellular 166.07
Simple 33.6 Communicator x/SimpleJack 178.74
Simple Data/PC Card hard drive 485.96
Xircom 33.6 ....224.96
Xircom 33.6 Ethernet 10BT 309.52
Xircom 33.6 Ethernet combo 334.50

CDW® Computer Centers, Inc.
1020 E. Lake Cook Road
Buffalo Grove, IL 60089

NASDAQ
BUY WITH CONFIDENCE CDW® IS A NASDAQ TRADED COMPANY
TICKER SYMBOL CDWC
D & B rated 5A1
Duns 10-762-7952

DISCOVER VISA MasterCard AMERICAN EXPRESS Cards

Credit card charges are not submitted until time of shipment. For your protection, we ship only to your credit card's verified billing address. Freight is calculated as the carrier's actual freight charge plus insurance and packaging material. The cost of insurance is 0.35% (0.0035) of the order total. Packaging materials will not exceed $4.00 for single package shipments or $6.00 for multi-package shipments. Before returning any product, you must obtain an RMA number. Non-defective returns are subject to a restocking fee. Software, chips and other electronic components are not returnable. Allow 10 business days for shipping when paying by personal check. All pricing subject to change. For all prices, products and offers, CDW reserves the right to make adjustments due to changing market conditions, product discontinuation, manufacturer price changes, errors in advertisements or other extenuating circumstances. All trademarks and registered trademarks are the sole property of their respective owners.

CDW® TELEPHONE HOURS
Sales
Monday-Friday 7am-9pm CST
Saturday 9am-5pm CST
Tech Support for Customers
Monday-Friday 8am-9pm CST
Saturday 9am-5pm CST

Fax: 847-465-6800
Sales: 800-865-4239

Visit our web site!
www.cdw.com

MACROMEDIA **Director Multimedia Studio 2**

For Windows 95 and NT

FREE Interactive Training CD & book from Macromedia Press, a $49.95 value!

Everything you need to create professional multimedia projects from the ground up

■ Director 5–Powerful authoring tool for multimedia and the Internet ■ Extreme 3D™–3D solution for design and multimedia ■ Macromedia xRes™–High resolution image editing and compositing ■ Shockwave™ for Director–Features integration into the most popular browsers, cross-platform playback, hotlinks and more ■ Sonic Foundry Sound Forge XP–Award-winning, general purpose sound editor

Upgrade, CD **$458.45** CDW 66963

CD **$888.75** CDW 66961

WHY SETTLE FOR LESS?

CDW® SERVICES YOU BETTER!™

Microsoft

Office 97 Professional Edition Upgrade

With Bookshelf Basics and Intellimouse

For Windows 95 and NT Workstation

Now, for a limited time and a special price, you can get Microsoft® Office 97 Professional Edition with Bookshelf® Basics and Intellimouse™. Along with everything you need to organize information and your everyday tasks, you get the power of the web, access to a world of information with Bookshelf Basics and the unparalleled performance of the Intellimouse. Includes: Excel 97, Word 97, PowerPoint® 97, Access 97 and the newest addition to Office, Outlook™ 97

$339.09 CDW 78405

CDW CIRCLE OF SERVICE®

CDW® CARRIES OVER 20,000 PRODUCTS. IF YOU DON'T SEE IT, CALL!

COMPUTERS

TOSHIBA

tellite & Satellite Pro Notebooks
0CS 5/100 8MB 810MB 11.3" dual 1499.88
0CDS 5/100 8MB 810MB 11.3" dual 6X CD . 1939.64
0CDS 5/100 8MB 810MB 11.3" dual 6X CD .. 2149.63
0CDT 5/100 8MB 1.26GB 11.3" active 6X CD ... 2868.39
0CDS 5/120 16MB 1.2GB 11.3" dual 10X CD ... 2449.03
0CDT 5/120 16MB 1.2GB 11.3" active 10X CD . 3279.39
rtege Notebooks
0CT 5/133 16MB 1.26GB 11.3" active 3959.01
0CDT 5/150 16MB 1.2GB 11.3" active 6X CD ... 4958.73
cra Notebooks
0CS 5/120 16MB 1.26GB 12.1" dual 2179.00
0CDT 5/120 16MB 1.26GB 12.1" active 6X CD ... 3849.00
0CDT 5/133 16MB 2.1GB 12.1" active 10X CD ... 4899.62
0CDT 5/150 16MB 2GB 12.1" active 6X CD 5689.75
inia Mini-towers
30 5/133 16MB 1.5GB 8X CD 1299.00
60 5/166 16MB 1.9GB 8X CD 1599.00
00 5/200 32MB 3GB 8X CD 2199.00

AST

centia Notebooks
1 5/120 16MB 1GB 11.3" dual 6X CD 2138.44
2 5/120 16MB 1GB 12.1" active 6X CD 2687.73
) 5/100 8MB 800MB 11.3" dual 1257.71
) 5/100 8MB 800MB 10.4" dual 1589.43
) 5/133 8MB 800MB 10.4" active 1799.00
5 5/133 16MB 1GB 11.3" active 2239.97
0 5/100 8MB 800MB 11.3" dual 4X CD 1919.84
0 5/100 8MB 1.2GB 11.3" dual 4X CD 2084.97
0 5/120 16MB 1GB 11.3" active 6X CD ... 3028.70
0 5/120 16MB 2.1GB 11.3" active 6X CD ... 3399.18
0 5/133 8MB 800MB 11.3" active 4X CD 2999.74
0 5/133 8MB 1.2GB 11.3" active 4X CD 3236.67
0 5/133 24MB 1GB 12.1" active 6X CD 3627.54
0 5/133 24MB 2.1GB 12.1" active 6X CD ... 3999.14
vantage! Lifestyle Mini-towers
10 5/166 24MB 2.5GB 8X CD 1819.22
12 5/166 24MB 2.5GB 8X CD 1915.79
15 5/166 32MB 2.5GB 8X CD 1915.79
16 5/200 32MB 3GB 8X CD 2199.86
vantage! 9300 Series Mini-towers
04 5/133 24MB 1.6GB 8X CD 1359.31
08 5/166 24MB 2.5GB 8X CD 1647.54
14 5/200 24MB 4GB 8X CD 2009.36
vo Desktops
5133 5/133 8MB 630MB 1189.91
5133 5/133 16MB 1.2GB 1256.75
5166 5/166 16MB 1.2GB 1579.55
5100 5/100 16MB 1.2GB 1118.99
5133 5/133 16MB 1.2GB 1327.11
5133 5/133 16MB 2.1GB 1389.25

COMPAQ

nada Notebooks
20 5/100 8MB 810MB 10.4" dual 1499.00
20T 5/100 8MB 810MB 10.4" active 1999.00
30 5/120 16MB 1.08GB 10.4" dual 1899.00
30T 5/120 16MB 1.08GB 10.4" active 2299.00
10 5/100 8MB 810MB 11.3" dual 2499.00
0D 5/100 8MB 810MB 11.3" dual 2899.00
20 5/120 16MB 1.08GB 11.3" dual 3099.00
20T 5/120 16MB 1.08GB 11.8" active 3749.00
30T 5/133 16MB 1.08GB 11.8" active 4449.00
E 5000 Series Notebooks
50 5/120 16MB 810MB 10.4" active 3199.00
90 5/120 16MB 1.35GB 11.3" active 3899.00
00 5/133 16MB 1.35GB 12.1" active 4399.00
30 5/133 16MB 2.16GB 12.1" active 5499.00
00 5/150 32MB 2.16GB 12.1" active 5599.00
skpro 2000 Series Desktops
00/1200 5/100 8MB 1.2GB 1119.00
00/1200 5/100 16MB 1.2GB 1229.00
20/1200 5/120 8MB 1.2GB 1139.00
20/1200 5/120 16MB 1.2GB 1239.00
33/1200 5/133 16MB 1.2GB 1389.00
33/2500 5/133 16MB 2.5GB 1549.00
36/1200 5/166 16MB 1.2GB 1639.00
36/2500 5/166 16MB 2.5GB 1799.00
00/2500 5/200 32MB 2.5GB 2209.00
00/1200/CD 6/180 16MB 1.2GB 8X CD 2099.00
00/2500/CD 6/200 16MB 2.5GB 8X CD 2599.00
skpro 4000 Series Desktops
20/1080 5/120 16MB 1.08GB 1349.00
20/1620/LS 5/120 16MB 1.62GB 1529.00
33/1080 5/133 16MB 1.08GB 1539.00
33/1620 5/133 16MB 1.62GB 1629.00
36/1620 5/166 16MB 1.62GB 1879.00
36/2500/LS 5/166 16MB 2.5GB 2089.00
0/1620/CDS 6/180 32MB 1.62GB 8X CD 2549.00
0/2500/LS/CDS 6/200 32MB 2.5GB 8X CD 2959.00

COMPUTERS

COMPAQ

Deskpro 6000 Series Desktops
5166/1080/CDS 5/166 16MB 1.08GB 8X CD . 2329.00
5166/1080/CDS 5/166 32MB 1.08GB 8X CD . 2579.00
5200/1080/CDS 5/200 32MB 1.08GB 8X CD . 2899.00
6180/2150/CDS 6/180 32MB 2.15GB 8X CD . 3199.00
6200/2150/CDS 6/200 32MB 2.15GB 8X CD . 3339.00
Presario Desktops
4112 5/120 16MB 1.6GB 6X CD 1379.73
4122 5/150 16MB 2.5GB 8X CD 1499.00
4402 5/133 16MB 1.6GB 6X CD built-in 15" monitor 1558.27
Presario Mini-towers
4704 5/133 16MB 1.6GB 6X CD 1558.27
4712 5/166 24MB 2.5GB 6X CD 1699.00
6704 5/166 24MB 2.5GB 8X CD 1869.15
8702 5/166 24MB 2.5GB 8X CD 1869.15
4764 5/166 MMX 24MB 2.5GB 16X CD 1899.00
4716 5/200 32MB 2.5GB 8X CD 1999.00
4770 5/200 MMX 32MB 3.8GB 16X CD 2299.00
6708 5/200 32MB 2.5GB 8X CD 2389.95

IBM

ThinkPad Notebooks
365X 5/120 8MB 810MB 10.4" active 2369.14
365XD 5/120 8MB 810MB 10.4" active 4X CD ... 2559.48
365XD 5/120 8MB 1.08GB 11.3" dual 4X CD 2299.39
365XD 5/120 8MB 1.08GB 10.4" active 4X CD ... 2999.60
365X 5/133 8MB 1.08GB 11.3" dual 2249.08
365XD 5/133 8MB 1.35GB 11.3" active 6X CD ... 3479.05
560 5/100 8MB 810MB 11.3" dual 2786.08
560 5/120 8MB 810MB 12.1" active 3745.64
560 5/133 8MB 1.08GB 12.1" active 4195.15
760E 5/120 8MB 810MB 12.1" active 4459.26
760E 5/120 8MB 1.2GB 12.1" active 4504.59
760E 5/133 16MB 1.08GB 12.1" active 5056.50
760ED 5/133 16MB 1.2GB 12.1" active 4X CD ... 5427.15
760ED 5/133 16MB 2.1GB 12.1" active 6X CD ... 5799.38
760E 5/150 16MB 2.1GB 12.1" active 5724.37
760EL 5/100 8MB 810MB 11.3" dual 2598.88
760ELD 5/100 8MB 810MB 12.1" active 4X CD . 4615.23
760EL 5/120 8MB 810MB 11.3" dual 2609.17
760EL 5/120 8MB 1.08GB 12.1" active 4389.50
760EL 5/120 8MB 1.35GB 11.3" dual 2789.15
760EL 5/133 16MB 1.08GB 12.1" active 4499.92
Aptiva Series Desktops
C32 5/133 16MB 1.2GB 6X CD 1497.13
C33 5/133 16MB 1.6GB 8X CD 1699.74
C65 5/166 16MB 2GB 8X CD 1957.48
C73 5/200 16MB 2.5GB 8X CD 2097.53
S64 5/166 16MB 2.5GB 8X CD 1999.80
S66 5/166 16MB 3.2GB 8X CD 2099.00
S74 5/200 16MB 2.5GB 8X CD 2149.00
S78 5/200 32MB 3.2GB 8X CD 2399.00
S80 5/166 MMX 32MB 3.2GB 8X CD 2399.00
S90 5/200 MMX 32MB 3.2GB 8X CD 2599.00
PC300 Series Desktops
PC330 5/133 16MB 1.2GB 3 bays 1499.12
PC330 5/166 MMX 16MB 2.5GB 3 bays 2209.72
PC340 5/100 8MB 850MB 4 bays 999.45
PC340 5/100 16MB 1.2GB 4 bays 1215.04
PC340 5/133 16MB 1.2GB 4 bays 1349.05
PC340 5/166 16MB 1.2GB 4 bays 2059.96
PC340 5/166 16MB 2.5GB 4 bays 2398.87
PC350 5/100 16MB 1.2GB 5 bays 1319.61
PC350 5/133 16MB 1.2GB 5 bays 1556.41
PC350 5/133 16MB 1.6GB 5 bays 1619.06
PC350 5/133 16MB 1.6GB 5 bays 6X CD 1799.92
PC350 5/166 16MB 1.6GB 5 bays 1819.69
PC350 5/166 MMX 16MB 2.5GB 5 bays 2248.54
PC350 5/200 32MB 1.6GB 5 bays 2295.00
PC350 5/200 MMX 32MB 2.5GB 5 bays 2769.78

NEC

Versa Notebooks
2400 5/100 8MB 810MB 11.3" dual 1699.00
2400CD 5/100 8MB 1.08GB 11.3" dual 6X CD 2199.00
4230 5/133 8MB 1.08GB 10.4" active 6X CD 2899.00
6010H 5/133 16MB 1.08GB 11.3" active 6X CD 3799.00
6030H 5/133 16MB 1.35GB 12.1" active 6X CD 3799.00
6030X 5/133 16MB 1.44GB 12.1" active 6X CD 3999.00

TEXAS INSTRUMENTS

Extensa Notebooks
570CDT 5/100 8MB 1.2GB 10.4" active 6X CD ... 1929.12
600CD 5/120 8MB 810MB 12.1" dual 6X CD .. 1929.70
650CD 5/133 16MB 1.4GB 12.1" dual 10X CD 2415.31
650CDT 5/133 16MB 2.1GB 11.3" active 10X CD . 2894.07
900 5/133 16MB 1.35GB 12.1" dual 3197.78
900T 5/133 16MB 1.35GB 11.3" active 3689.73
900CDT 5/133 16MB 1.35GB 11.3" active 8X CD . 4138.08
TravelMate Notebooks
TM6020 5/120 8MB 1.08GB 11.3" active 2699.55
TM6030 5/133 16MB 1.35GB 12.1" active 3374.02
TM6050 5/150 16MB 1.35GB 12.1" active 3659.23
TM6050NT 5/150 32MB 2.1GB 12.1" active ... 4329.36

COMPUTERS

HEWLETT® PACKARD

Vectra 520 Series Desktops
520MCx 5/120 12MB 1.2GB 8X CD 1529.75
520 5/133 16MB 1.2GB 1279.84
520CD 5/133 16MB 1.2GB 8X CD 1534.65
520MCx 5/133 16MB 1.2GB 8X CD 1717.86
Vectra 525 Series Mini-towers
525CD 5/166 16MB 1.6GB 8X CD 1894.94
525MCx 5/166 16MB 1.6GB 8X CD 2094.49
525CD 5/200 16MB 2.5GB 8X CD 2196.31
525MCx 5/200 32MB 2.5GB 8X CD 2584.40
Vectra 525 Series Mini-towers w/Microsoft software
525CD 5/133 16MB 1.2GB 8X CD 1729.34
525MCx 5/133 16MB 1.2GB 8X CD 1905.72
525CD 5/166 16MB 1.6GB 8X CD 2069.12
525MCx 5/166 16MB 1.6GB 8X CD 2229.46
525MCx 5/200 32MB 2.5GB 8X CD 2886.62

SONY

PCV-70 5/166 32MB 2.1GB 8X CD 1599.99
PCV-90 5/200 32MB 2.5GB 8X CD 1799.99

PRINTERS

Canon®

BJ-30 monochrome 265.50
BJC-70 ..... 297.28
BJC-240 ..... 179.00
BJC-620 ..... 399.00
BJC-4100 ..... 229.00
BJC-4200 ..... 279.00
BJC-4550 ..... 499.00
MultiPASS C2500 color multi-function 599.00

EPSON®

DFX5000+ 1387.25
FX870 ..... 289.45
LQ570+ 246.25
LQ870 ..... 439.03
LQ2070 ..... 379.04
LQ2170 ..... 599.00
LX300 ..... 165.41
Stylus 1500 ..... 995.00
Stylus Color 500 ..... 279.00
Stylus Pro color 379.00
Stylus Pro XL color 1799.00

HEWLETT® PACKARD

HP DeskJet 400 color printer 179.00
HP DeskJet 340 portable inkjet printer 289.84
HP DeskJet 682C color printer 269.00
HP DeskJet 693C color printer 299.00
HP DeskJet 820Cse color printer 399.00
HP DeskJet 870Cse color printer 499.00
HP LaserJet 5L Xtra printer 399.00
HP LaserJet 6P printer 729.95
HP LaserJet 6MP printer 878.45
HP OfficeJet inkjet fax/copier/printer 475.87
HP OfficeJet 350 inkjet multi-function 549.00

LEXMARK

Color Jetprinter 1020 ..... 149.74
Color Jetprinter 2030 ..... 197.06
Color Jetprinter 2050 ..... 249.83
Color Jetprinter 2070 ..... 338.40
Optra C 5909.75
Optra E 499.48
Optra Lx+ 1897.88
Optra Lxn+ 2229.78
Optra N 2688.22
Optra R+ 1255.23
Optra Rn+ 1479.44
Optra Rt+ 1479.44

OKIDATA

ML184 Turbo 228.28
ML320 Turbo 317.15
ML321 Turbo 445.72
ML395 ..... 1005.20
ML520 ..... 379.94
ML521 ..... 509.02
ML590 ..... 445.72
ML591 ..... 599.67
Okipage 4w 299.00
OL600e 399.00
OL610e 497.33
OL810e 669.53

HARD DRIVES

Quantum

Fireball TM 1.2GB Fast ATA-2 ..... 208.93
Fireball TM 2.1GB Fast ATA-2 ..... 267.28
Fireball TM 3.2GB Fast ATA-2 ..... 345.27
Fireball TM 1.2GB Ultra SCSI-3 ..... 288.01
Fireball TM 2.1GB Ultra SCSI-3 ..... 344.12
Fireball TM 3.2GB Ultra SCSI-3 ..... 449.02

Seagate

631MB Fast ATA 129.89
1.08GB Fast SCSI-2 ..... 279.25
1.2GB Fast ATA-2 ..... 208.93
2.1GB Fast ATA-2 ..... 289.47
2.1GB Fast SCSI-2 ..... 604.12
2.14GB Fast SCSI-2 ..... 766.02
4.29GB Ultra SCSI 1248.20
9GB Fast SCSI-2 ..... 1897.53

WESTERN DIGITAL

Caviar 1.2GB EIDE 217.15
Caviar 1.6GB EIDE 238.47
Caviar 2.1GB EIDE 296.68
Caviar 2.5GB EIDE 316.80
Caviar 3.1GB EIDE 349.03

MODEMS

Cardinal

33.6 internal 98.23
33.6 voicemail w/spkrphone internal 147.00
33.6 voicemail w/spkrphone external 165.82
ISDN Basic Rate ISA adapter 184.51

Hayes

ACCURA 336 V.34 internal w/fax 139.13
ACCURA 336 V.34 external w/fax 149.36
ACCURA 336 V.34 voice internal 158.77
ACCURA 336 DSVD internal 168.17
ACCURA 336 DSVD external 189.27
OPTIMA 336 Business Modem internal 225.38
OPTIMA 336 Business Modem external 239.56
ACCURA ISDN 249.45

MOTOROLA

ModemSURFR 33.6 internal 129.48
ModemSURFR 33.6 external 149.30
VoiceSURFR 33.6 internal 149.29
VoiceSURFR 33.6 external 167.00
BitSURFR Pro ISDN internal 347.02
BitSURFR Pro ISDN external 346.69

U.S. Robotics

Sportster Series
14.4 internal w/fax 44.12
Winmodem V.34 33.6 internal w/fax 114.93
V.34 33.6 internal w/fax 149.48
V.34 33.6 external w/fax 169.29
Voice V.34 33.6 internal w/fax 169.29
Voice V.34 33.6 external w/fax 189.40
ISDN 128K terminal adapter 229.66
Courier Series
V.34 33.6 internal w/fax 208.88
V.34 33.6 external w/fax 269.51
I-modem ISDN V.34 faxmodem internal 289.14
I-modem ISDN V.34 faxmodem external 344.74
DataBurst ISDN U interface external 199.20
DataBurst ISDN S/T interface external 236.48

BATTERY & BACK UPS

Back-UPS Office 136.42
Back-UPS Pro 280 PNP 139.42
Back-UPS Pro 420 PNP 229.25
Back-UPS Pro 650 PNP 287.44
Smart-UPS 450NET 299.41
Smart-UPS 700NET 374.87
Smart-UPS 1000NET 514.94
Smart-UPS v/s 650 ..... 307.34
Smart-UPS v/s 1000 ..... 429.36
Smart-UPS v/s 1400 ..... 565.45
SurgeArrest Personal 16.25
SurgeArrest Professional 26.21
SurgeArrest Network 29.10

CDW® Computer Centers, Inc.
1020 E. Lake Cook Road
Buffalo Grove, IL 60089

COMPUTER DISCOUNT WAREHOUSE™

Call for a FREE CDW catalog!

800-865-4239

www.cdw.com

Circle 46 on reader service card

MIDWEST COMPUTER WORKS

Where Corporate America Shops!

✓ Knowledgeable Sales Staff ✓ Fast Delivery ✓ Quality Top Name Brands ✓ Technical Support

PRINTERS

ALPS
MD2010/4000 ....439/629

Canon
BJ-3D /BJC-70 ....255/299
BJC-240 179
BJC-42D0/BJC-455D 273/469
BJC-62D ....72Dpi Color 379

EPSON
LO570+ / Color Stylus 500 ...246/268
Color Stylus 150D 898
ColorStylus Pro XL (12.5"x18") ...1699

FARGO
Fotofun 3x5 color printer 449
Primera Pro 1329
Primera Pro PS w/ Photoshop 1829
Pictura 310E Dye-Sub w/PS 4189

HEWLETT PACKARD
DeskJet 690C, 5ppm / 690C 334/339
DeskJet 820CXi, 8ppm 600dpi 385
DeskJet 870CXI, 8ppm, 600dpi 479
DeskJet 1600C/DeskJet 1600CM 1299/1939
LaserJet 4V 16ppm 600dpi.11x17 1899
LaserJet 4MV 16ppm 600dpi.11x17 2772
LaserJet 5LFS 4ppm 600dpi 458
LaserJet 5, 12ppm 4MB 1259
LaserJet 5M, 12ppm 6MB 600dpi 1725
LaserJet 5N, 12ppm 600dpi, e-net 1529
LaserJet 5SI 24ppm 2779
LaserJet 5SIMX 17ppm 600dpi 3892
LaserJet 6P 8ppm 600dpi 749
LaserJet 6MP 8ppm 600dpi Pstscrpt 899
Color LaserJet 5, 12ppm 4MB 600dpi 5829
Copyjet Color Inkjet 1391

Kodak
XLS 865D Dye-Sub 7999
XLS 8650 Dye-Sub, 32M/48M ...8369/8549

LEXMARK
Optra E 6ppm 1MB 6DDdpi 499
Optra R+ 12ppm 2MB 1200dpi 1249
Optra RN+ 16ppm 4MB 1200dpi 1495
Optra LX+ 16ppm 4MB 1200dpi 1849
Optra NT245 24ppm 4MB 600dpi 3288

OKIDATA
184 Turbo 225
320/321/52D/521 ...315/442/379/489
590+ / 591+ 439/599
395 / 395c 999/1D99
6DDe/610e/610ePS 397/489/699
Laser 81D LED 8ppm/12DD .669/976
OkiJet 2010 ....COLOR!!! 289

Panasonic
KXP-4440 ....1D19
KXP-6100 / KXP-6500 ....394/439

QMS
Magicolor CX Laser, 8M, 12ppm 600dpi ...5395
Magicolor CX Laser, 20M, 12ppm 600dpi.5995
Magicolor CX, 40M8, 12ppm, 1200dpi 7999
Hammerhead 2060BX, 8M, 20ppm 600dpi2689
Hammerhead 2060EX, 48M, 20ppm, 1200dpi 5379

SEIKO
Smartlabel Pro 229

PLOTTERS

CALCOMP
Designmate 3024S 8-pen D-size, ser. 1279
Designmate 3024M 8-pen D-size, par 1549
Designmate 3036S 8-pen E-size, ser 1729
Designmate 3036M 8-pen E-size, par 1979

HEWLETT PACKARD
Designjet 330 D-size 24/E-size 36 .1799/2449
Designjet 350C D-size/E-size 36 ....2249/2879
Designjet 700 D-size 24/E-size 36 .3599/4399
Designjet 750C D-size 24/E-size 36 ....5199/5999
Techjet 720C D-size 24 /E-size 1999/2399

NETWORKING

CISCO ISDN Access Router 739
CISCO CPA 2509/2514 ....2019/2039

3Com
Etherlink III ISA coax 107
Etherlink III ISA 10BT TPO / 5-pack 89/416
Etherlink III Combo ISA coax & 10BT/5-pk ...119/513
3C900TPO PCI / 5-pack 109/509
3c515 TX ISA / 5-pack 159/723
Superstack II 12-port Hub/24-port Hub 509/847

ARTISOFT
Lantastic Ugrade V1.0 Win 95 CD 69
Lantastic V1.0 Win 95 Starter Kit 259
Lantastic V7.0 1-user/5-user 79/319
Lantastic V7.0 Network Starter Kit. 219

Digi
ALL MODELS IN STOCK ....CALL TODAY!

intel
EtherExpress Pro 10+ 89
EtherExpress Pro 10+ PCI 119
EtherExpress Pro 10/100 PCI 209
EtherExpress 10/100 5-pack 1009

LINKSYS
EtherFast 10/100BT TX LAN 103
EtherFast 10BT TX LAN 5-pk/10pk .469/857
PCMCIA 10BT 104
Workgroup Hub 10-port/20-port ...105/1B6

MICRODYNE
NE2000+ 10BT/COAX 75/75
NE4200 PCMCIA 10BT or COAX 157

NETGEAR
EN104 4-port 10BT Hub 69
EN116 E-net 16-port 10BT Hub 199
RT211 ISDN Router 459
SW507 E-net 10/100 Switch 895

PACIFIC DATA PRODUCTS
DirectNet 10BT Print Server for HP LaserJet 4 279
DirectNet EX external print server 315

SMC
EtherEZ 8416T / 5-pack 89/369
EtherEZ PCMCIA 129
Etherpower 10/100 PCI 10BT/5-pack 139/612

THOMAS-CONRAD CORPORATION by COMPAQ
3047CX 32-bit EISA 100MB 597
3045-CX 100mbps ISA coax 439

TRENDWARE
TE-16XP/CT 16-bit Xpress Combo ISA 29
TE-16PnP Plug-n-Play Combo ISA 35
TE-200CT PCMCIA II Combo RJ45 99
TE100-PCI 10/100 PCI Card 99
TE100-H8 8-port 100Base-TX Hub 629

Xircom
Creditcard IIPS Ethernet 10BT 132
Creditcard IIPS Ethernet COMBO 10BT & coax ...169
Pocket Ethernet Print Server..Coax or 10BT ..299

NOVELL
Call for discount pricing on all NetWare Software!
NetWare SFT III 3.12...BEST PRICES ....CALL
NetWare 4.1 5-user ....Low Price
NetWare 4.1 10-user ....Low Price
INTRANETWARE Full Package & Upgrade ..CALL

DESKTOPS

Wyse Terminals ....ALL MODELS IN STOCK

AST
Bravo MS P-100 1.2GB 16M 1119
Bravo MS P-133 1.2G 16M 1349
Bravo MS P-166 1.2G 16M 1679
Bravo MS-T, P-100 1.2G 16M 1249
Bravo MS-T P-133 2G 16M 1429
Bravo MS-T P-166 2G 16M 8X 1679
Bravo MS-T, P-200, 2G 16M 1989
Bravo MS-T P Pro-180 1.6G 16M 8X 2029
Bravo MS-T P Pro-200 2.5G 32M 8X E-net 2739
Bravo MS-T P Pro-200 2.5G SCSI 32M 8X E-net ...3399

COMPAQ
Deskpro 2000 P-100 1.2G 8M 1149
Deskpro 2000 P-166, 1.2G 8M 1651
Deskpro 4000 P-120, 1.6G 16M 1528
Deskpro 4000 P-133, 1.6G 16M 1649
Deskpro 4000 P-166, 2.5G 16M 2108
Deskpro 6000 P-200 1.08G 32M 2889
See Compaq Server Listings Below

HEWLETT PACKARD
Vectra VL4, P-100, 1.2G 16M 1324
Vectra VL4, P-133, 1.2G 16M 1462
Vectra XA, PP-200, 2.5G 32M 2970

IBM
PC330 P-133 1.2GB 16M 1579
PC350 P-166 1.6G 16M 1951
PC73D, P-1DD, 1.2G 16M 1339
PC750, P-133, 1.2G 16M 1829
PC750, P-166, 1.2G 16M 2039

Servers

AST
Manhatten S, PP-200, 2G, 32M, 4xCD 8188
Manhattan S, PP-20D, 2x2G, 64M, 4xCD 11,229
Manhattan CP, PP-200, 2G, 64M 8649

COMPAQ
Prosignia 3D0, P-12D, 2.1G, 16M 2463
Prosignia 5DD, P-15D, 2.1G, 32M 3621
Prosignia 500, P-150, No HD, 32M 2849
Proliant 15DD, P-166, No HD, 32M 6699
Proliant 1500, P-166, 2x4.3G, 32M ...11,299
Proliant 5000, PP-166, 128M 15,499
Proliant 5DDD, PP-2DD, 128M 19,799

HEWLETT PACKARD
Netserver LC, P-166, no HD, 32M 2499
Netserver LC, P-166, 2.1G, 32M 3399
Netserver LH, PP-2DD, No HD, 32M 9989
Netserver LX Pro, PP166, No HD, 64M ..9999
Netserver LX, PP-2DD, No HD 11,689

IBM
PC Server 320, P-133, 2.25G, 16M 4659
PC Server 32D, P-166, 2.25G, 32M 6999
PC Server 520, P-100, 4x2.25G, 32M 10,499
PC Server 704, P-166, 4x2.25G, 32M 13,489

Multimedia PC's

(Models listed below come complete with an integrated 8X CD-ROM drive, 28.8 or higher modem & more.)
AST Advantage 829 P-200, 2.5G16M 2699
Canon Innova 9210 P-120, 1.6G 16M 1499
Canon Innova 9350 P-133, 1.6G 16M 1799
Canon Innova 9610 P-166, 2.1G 16M 2229
Compaq Presario 4716 P-200, 2.5G 32M 2799
Compaq Presario 6708 P-200, 2.5G 32M 2949
HP Pavilion 7208P P-166, 2.5G 16M 2399
HP Pavilion 7275Z P-166, 2.5G 32M 2599
IBM Aptiva S64 P-166 2.5G 16M 2629
IBM Aptiva S78 P-200, 3.2G 32M 3099
Sony Vaio PCV-70 P-166, 2.1G 32M, 28.8 2M Video ....Call
Sony Vaio PCV-90 P-200, 2.1G 32M, 28.8 2M Video ....Call

NOTEBOOKS

AMS Tech
TravelPro 1950CS P-133 1.3G 16M 12.1" DS 10X 2798
TravelPro 1950CT P-133 1.3G 16M 12.1" TFT 10X 3228
TravelPro 2000CX P-150 2.1G 16M 13.3" TFT 28.8 ...3999

AST
**** PRICE DROP!! ****
Ascentia J55 P-133 1.0G 16M 11.3" SVGA TFT 33.6 ...2204
NEW!! Ascentia A41 P-120 1.0G 16M 11.3" DS 6X 2254
Ascentia P50 P-133 1.0G 24M 12.1" TFT 28.8 6X 3579
Ascentia P50 P-133 1.0G 24M 12.1" TFT 28.8 6X 3939

Canon
Notejet 3CX P-90 810M 8M 11.8" TFT 4799
Notejet 3CX P-120 1.2G 8M 11.8" TFT 5499
490CDS P-133 108G 16M 11.3DS 2449
490CDT P-133 1.08G 16M 11.8" TFT 6X 4369

COMPAQ
Armada 4120 P-120 16/1.08G 11.8" TFT 3079
Armada 4130 P-133 16/1.08G 11.8" TFT 4369
Lte 5300 P-133 16M/1.35G 12.1" Act Clr 4387
Lte 5380 P-133 32M/2.16G 12.1" Act Clr 5369
Lte 5400 P-150 32M/2.16G 12.1" Act Clr 5499

HITACHI
E100D P-100 810M 8M 11.3" Dual 1798
E133DN P-133 1G 16M 11.3" Dual 1789
E133T P-133 810M 16M 11.3" TFT 2389
M133T P-133 1G 16M 11.8" TFT 6xCD 3429
MX133T P-133 1.35G 16M 12.1" TFT 33.6 4279
MX150T P-133 2.1G 16M 12.1" TFT 33.6 4759

IBM
365XD P-120 1.08G 8M 11.3" Dual 2499
365X P-133 1.08G 8M 11.3" Dual 2503
560 P-100 810M 8M 11.3" Dual Scan 2598
560 P-120 810M 8M 12.1" TFT 3629
760ED P-133 1.2GB 16M 12.1" TFT, CD 5455
760EL P-133 1.08GB 16M 12.1" Active 4429

MAGITRONIC
610 P-133 2.1G 16M 12.1" Active 3529
620S, P-120, 1.3G 16M 6xCD 12.1" Act 2699
620TF, P-133, 2.1G 16M 6xCD 12.1" Act 3649
620, P-166, 2.1G 16M 6xCD 12.1" Act 3779

NEC
Versa 4230 P-133 1.08G 6xCD 10.4" Actv 3446
Versa 6000H P-100 16/1GB CD 11.3" TFT 3449
Versa 6030H P-133 16/1.35GB CD 12.1" TFT 4379
Versa 6030X P-133 16/1.44GB 12.1" TFT 4479

olivetti
Echos P-100 1.3G 8M 11.3" Dual 6xCD 1889
Echos P-100T 1.3G 8M 10.4" TFT 6xCD 2356
Echos P-120 1.3G 8M 11.3" TFT 6xCD 2769
Echos P-133 1.3G 8M 11.8" TFT 6xCD 3369
Echos Pro P-133 2.1G 16M 12.1" TFT 8xCD ...3989

TEXAS INSTRUMENTS
Extensa 570CDT P-100 1.2G 10.4" Actv 2729
Extensa 570CDTSE P-100 2G 8M 10.4" Actv 2949
Extensa 650CD P-133 1.35G 16M 12.1" Dual 2979
TM6050 P-150 1.35GB 16M 12.1" TFT 4729

TOSHIBA
110CS P-100 810M 8M 11.3" Dual 1579
200CDS P-100 810M 8M 11.3" Dual 6xCD 1989
420CDS P-100 810M 8M 11.3" Dual, CD 2159
430CDS P-120 1.3G 16M 11.3" Dual 10xCD 2489
430CDT P-120 1.3G 16M 11.3" Active 10xCD 3342
500CDT P-120 1.2G 16M 12.1" TFT CD 4229
510CDS P-133 1.3G 16M Dual 3649
510CDT P-133 1.3G 16M Active 10xCD 4919
650CT P-133 1.2G 16M 11.3" Active 3939
730CDT P 150 2.0G 16M 6xCD 12.1" Actv 5689

SHARP
PC 9020 P-120 1.1G 16M 12.1" Dual 8xCD 1879
PC 9070 P-133 1.1G 16M 12.1" TFT 4X 2819
PC 9080 P-133 1.3G 16M 12.1" TFT6xCD 4229
W-100D P-133 1.1G 16M 11.2" Dual 2739
W-100T P-133 1.1G 16M 11.2" TFT 3299

MONITORS

ADI
MicroScan 3VLR 14" .28mm 1024x768 249
MicroScan 4V 15" .28mm 1280x1024 329
MicroScan 5G 17" JUST ANNOUNCED ....Call
MicroScan 5V 17" .25mm, 1280x1024 541
MicroScan 17X 17" .28mm, 1280x1024 767

EIZO
F2-15 15" .28mm 1280x1024 TCO 579
T2-17TS 17" .25mm 1600x1200 TCO 919
TX-C7S 17" .25mm 1280x1024 1029
T2-20 20" .30mm 1280x1024 TCO 1819

MAG INNOVISION
DX1595 15" 1280x1024 .28mm 343
DX1795 17" 1280x1024 .26mm 599
DX700T 17" 1280x1024 .25mm 699
DX15T 15" 1280x1024 .25mm 369
MX21F 21" 1600x1280 .28mm 1549

MAGNAVOX
7BM749 14" VGA Mono 720x400 109
CM2099 14" VGA 1024x768.28mm 239
CM2015 15" 1024x768 .28mm 289
CM1215 15" EVGA 1024x768 .28mm 329
MB700 17" 1280x1024 .28mm 599
20CM64 20" 1280x1024 .31mm 899

MITSUBISHI
Diamond Scan 15VX 15" 1280x1024 .26 379
Diamond Scan 17TX 17" 1280x1024 .25 679
Diamond Scan 20H 20" 1280x1024 .28 1349
Diamond Scan21TX 21" 1564
Megaview 29" 2397

NEC
C400 14" 296
M700 17" .25 1280x1024 759
XE21 21" 1280x1024 .28mm 1699
Multiview 21" 1449

NOKIA
447L 17" 1280x1024 .28mm MPRII 679
447L059D 17" 1024x768 .28mm 699
447XI 17" 1280x1024.25mm MPRII 799
445XI 21" 1600x1200 .25mm MPRII 1759

Panasonic
Panasync C1491 14" 247
Panasync E15 15" 324
Panasync S17 17" 639
Panasync P17 17" 764
Panasync S21 21" 1529

SONY
CPD-100SX 15" 280x1024 .25mm 376
CPD-100SF 15" 1280x1024 .25" 442
CPD-200SX 17" 1280x1024 .25mm 649
CPD-200SF 17" 1280x1024 .25mm* 749
CPD-20SF2 20" 1600x1200 .25mm TCO* ..1599
GDM-17SE2T 17" 1600x1200 .25mm* 959
*(On-screen digital controls)

ViewSonic
V15ES 15" 1024X768 .28mm 345
V775 17" 619
P810 21" 1600X1280 .25mm 1458

VISIONMASTER by iiyama
MF-8617E 17" 1280x1024 .26mm 699
MT-9017E 17" 1600x1200 .30mm 759
MT-9021E 21" 1600x1200 .30mm 1539

DRIVES

CD-ROM DRIVES

Disctec CD6X / CD8X 21
Microsolutions 4X Par /8X Par .2D
NEC 8XI/8XE 32
Panasonic KXLD-74D 2 PCMCIA .
Plextor 8Plex 8x 115ms SCSI-2 int
Sony CSD-88DE 8x EIDE ....
Sony PRD-250 Discman Kit ....

CD RECORDABLE DRI

Hewlett Packard Surestore 4D2DI Int
Pinnacle Micro RCD 5040 Int/ext. .66
Phillips CDD 2000 int/ext. 57

REMOVABLE STORA

IOMega Ditto 2G int. ....
IOMega Ditto 2G parallel ....
IOMega Ditto 3.2G int. Travan ..
IOMega Zip / Jaz 1.GB int. 18
Pinnacle Micro Vertex 2.6GB Kit
Syquest EZ-Flyer 230 Par. ....
Syjet 1.5GB int. ....

TAPE BACKUP

Conner Tapestor 3.2G ext. SCSI. ....
Conner Tapestor 4G ext. SCSI. ....
Sony Store Station 2G (w/Navigator Sftwre).
Sony Nice 5200 int./ext. 7

COLORADO MEMORY SYSTEMS INC.
Powertape 1GB/ 2GB 6
Powertape 4GB int. ....

HARD/FLOPPY DRIV

Microsolutions Backpack 1.2G Par
Teac 1.44MB 3.5" Floppy ....
Teac FD505 Dual Floppy ....

MICROPOLIS
4221 2.1GB SCSI ....
1991W 9.D9 Wide ....

Quantum
Bigfoot 2.6G FATA ....
Fireball 3.8 3.5LP 12ms ....
Fireball TM 128D/3200 19

Seagate
Hawk ST32151N 2.1GB SCSI-2 ...

WESTERN DIGITAL
AC221D0 ....
Caviar 3100RTL 3.1GB ....

SCANNER

AGFA Arcus II ....
Calcomp ScanPlus III E-Size 36x72 ....
Nikon Super Cool Scan LS-1000 ....
Nikon Scantouch AX-1200 flatbed ...2400 d

Primec
ViewScan A2000D Color Handheld 600dpi
ViewStation AT3 Color 1-Pass 4800dpi ....
ViewStation AT6 Color 1-Pass 30-BIT ....
ViewStation A6000C+ Color 1-Pass 4800dpi

HEWLETT PACKARD
ScanJet 4S / ScanJet 4Si 1
ScanJet 4P/ ScanJet 4C ....

MICROTEK
PageWiz..Compact 300dpi, Parallel ....
ScanMaker E3 w/Imagestar NEW!! 24-bit Clr ....
ScanMaker E6 Standard ....

Polaroid
Sprint Scan 35/LE ....FILM SCANNER ....
Sprint Scan 35/Enhanced Software.FILM SCAN

UMAX
PageOffice Color ....
Vista S6E 600dpi w/ Photodeluxe ....
Vista S12 600X1200dpi, w/Photoshop LE ...
Powerlook II w/Trans. Adapter & Phtshp LE ....
Call for other Umax software bundles.

PERIPHERALS

CONTROLLERS

Acculogic Side VL EIDE 2 ser. 1 par 79
AdvanSys ABP-542 SCSI-2 ISA PnP 135
Boca IDE 2-HDD, 2-FDD IDE002 29
GSI Model 18 Eide Controller 49
GSI Model 4C 2-Channel IDE Controller 69
Promise EIDE 2300 Plus VLB/ EIDE Pro ISA ..49/49
Promise SCSI Max PCI/Ultra PCI 159/185

adaptec
AHA-1522A Single SCSI-2 ISA 75
AHA-1542 SCSI-2 ISA w/Flop Kit 199
AHA-2842 SCSI-2 VLB w/Flop Kit 229
AHA-2742 SCSI-2 EISA w/Flop Kit 345
AHA-2940 PCI SCSI Master 249
AHA-2940UW Ultra PCI Kit 284

CPU UPGRADES

intel
Pentium 100MHz CPU / Pentium 120MHz CPU ...135/165
Pentium 133MHz CPU / Pentium 150MHz CPU ...249/339
Pentium 166MHz CPU / Pentium 180MHz CPU ...479/589
Pentium Pro 200MHz CPU 679

Cyrix
386 to 486 CPU Upgrades and Math Chips ..CALL

VIDEO BOARDS

Hercules Terminator 64/3D 143
Hercules Terminator 64/VIDEO 179
Hercules Dynamite Pro 152

ATI
Video Xpression 87
Graphics XPression 2MB PCI 89
3D Graphics XPression PCI 152
3D Graphics XPression + PC2 TV 2MB 162
3D Graphics XPression + PC2 TV 4MB 184
Graphics Pro Turbo 2MB 177
Graphics Pro Turbo 4MB 269

DIAMOND
Edge 3D 2120XL 98
Edge 3D 3240XL 179
Edge 3D 3400XL 279
Monster 3D 3400XL 269
Speedstar 64 2120 79
Speedstar 3D 2400 XL 179

matrox
Millennium 3D PCI 2M 179
Millennium 3D PCI 4M 249
Millenium Upgrade 4MB to 8MB 179
Millenium Upgrade 2MB to 8MB 249
Mystique PCI 2M & 4M 168/229

VIDEO CAPTURE

AITech Pro PC TV Plus 139
AITech Wavewatcher/TV2 280
ATI Video Basic 179
Intel Smart VideoPro 388
PictureTel Live PCS 50 w/headset ISA .2599
TrueVision Targa 1DD0 1979
Sigma Reel Magic Ultra MPEG 339

CREATIVE
3DBlaster 329
Sharevision PC3DDD 389
VideoBlaster RT 300 329

MULTIMEDIA KITS

Diamond 12X CD-ROM Kit 389
Diamond Ultra 8OD0 8x 249

CREATIVE
Value CD 8X PnP w/SB 16 225
PhoneBlaster 33.6 int. PnP 229
Multimedia Home CD 8X w/SB32 ...3D9
Blaster CD-R 421D SCSI-2 629

Turtle Beach
Turtle Beach 6X Kit - sound, +50 titles ...209
Turtle Beach 8X Kit - sound, +50 titles ...235

PC SPEAKERS

LabTec 321D 2D-watt 79
NEC Audio Tower 49
Panasonic EABMPC25 45
Sony SRS-D4KPC 3D-watt w/sbwf .209

ALTEC LANSING
ACS53 System w/subwoofer 125
ACS3DD.1 System 165
ACS500 5-Channel Dolby Surround .299

DIGITIZERS

Calcomp Drawing Slate 12x12 16btn 209
Calcomp DrawingBoard III 12x12 w/ 16btn 232
Calcomp DrawingBoard III 12x12 w/ 4btn 237
Calcomp DrawingBoard III 12x12 w/ Pen 245
Calcomp DrawingBoard III 12x18 w/ 16btn 359
Calcomp DrawingBoard III 12x18 w/ 4btn 365
Calcomp DrawingBoard III 18x24 w/ 16btn 1029
Summasketch III 12x12 2btn stylus 245
Summasketch III 18x12 16btn stylus 475

WACOM
Artpad II 4x5 w/ Dabbler 149
Artz II 12x12 Cordless 409
ArtZ 6x8 Cordless 299

SOUND BOARDS

CREATIVE
Sound Blaster 16 Value IDE 89
Sound Blaster 32 IDE PnP 135
Sound Blaster 32 AWE PnP 219

Turtle Beach
Audio Advantage PCMCIA 129
Turtle Beach Tropez + ...219

MedioTriX
mediaTrix AudioTrix-Pro 219

Wavtech
Wavjammer 16-bit PCMCIA 199
Multimedia Combo SCSI 329

DIGITAL CAMERAS

Kodak digital science
DC20 "Great for the WEB!" 269
DC40 419
DC50 "Best Selling Camera" 789

MODEMS

Boca Express 14.4 w/Fax int. w/software ...
8oca 28.8 V.34 int./ext. 1
Multitech 1932ZDX 19.2 w/fax ext. ....
Multitech MT2834ZPX 28.8 int. ....
Practical PM144MT 14.4 Mini-Tower ex
Practical V.34 PCMCIA EZPort ....
Simple 14.4 Voice Data/FAX Modem ....
Zoom 14.4 w/Fax int./ext. ....

HAYES
Accura 28.8 w/fax int. / ext. V.34 14
Optima 28.8 w/fax int. / ext. w/voice ...2
Optima 28.8 EZJack PCMCIA ....

Megahertz
XJ4288 xJack 28.8 PCMCIA V.34 ....
XJ3288M 28.8 Cellular w/XJack ....

U.S. Robotics
Sportster 28.8 Winmodem Internal ....
Sportster Voice 33.6 Faxmodem Int. ...
Sportster 14.4 w/fax int./ext. ....
Sportster 33.6 V.34 int./ext. 145
Sportster PCMCIA 2.1 28.8 w/fax V.34
Sportster ISDN 128K ....
*-Upgradable to USR X2 56Kbps Tech

MIDWEST ORDER DEPARTMENT

800-659-6757
24-HOUR FAX
847-367-8540
International Line
847-367-6519

Office Hours M-F 8am-7pm CST

Special Sales Hours Now Open on Saturdays 10am-2pm

DHL FedEx
FAST SHIPPING, NO PROBLEM! WE DELIVER WHEN YOU NEED IT.

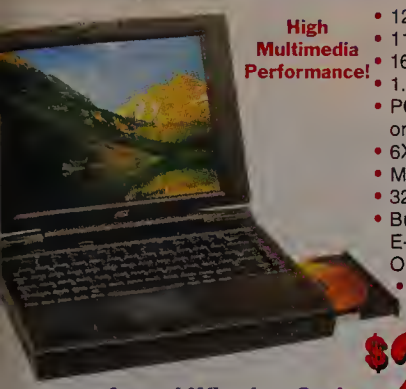
Easy Payment Methods!
• Leasing Available • Purchase orders accepted from educational institutions, federal & state agencies and approved corporations. • C.O.D's welcome.

Policy Information
• Personal & company checks will delay orders 2-weeks • No surcharge for credit cards • All prices subject to change • Orders outside the USA require payment by wire transfer or American Express • We check for stolen credit cards • All returns for credit, repair or exchange must have a "RA" number issued by our customer service department • Returned merchandise may depend on manufacturer policy* • Returned merchandise must in good condition and shipped to our main warehouse located at: 600 Bunker Court, Vernon Hills, IL 60061

VISIT US ON THE WEB!
http://www.mcworks.co

BUY FOR LESS! YOUR COMPLETE COMPUTER SOURCE! CALL MIDWEST!

AST. Ascentia A-41



High Multimedia Performance!

- 120MHz Processor
- 11.3" DS SVGA Color Display
- 16MB EDO RAM, 1MB VRAM
- 1.0GB HDD, 256KB Cache
- PC Card Slots, 2 Type II or 1 Type III
- 6X CD, 16-bit Sound
- MIDI & WAV support
- 32-bit PCI Video Bus
- Bundled with ConnectSoft E-mail Connection Software, On-line Starter kits & more
- 1-Year Worldwide Limited Warranty

Award Winning Series **$2254**

SHARP. PC-9080 Notebook

- Pentium® 133MHz Processor
- 12.1" XGA TFT Viewable LCD
- 16MB RAM, exp. 32MB
- 64-Bit PCI Bus, 2MB
- 1.3GB HDD
- 28.8Kbps Modem
- 16-bit SoundBlaster Compatible, Stereo Sound
- Two Type II or One Type III PC Card Slots
- Lithion-ion Battery
- Infrared Connection Port
- 3 Year Warranty

Smarter Notebooks for Sharp Minds **$4149**

AMS Tech Computers & Peripherals

TravelPro 200CX

13.3" LARGEST SCREEN AROUND!

- 13.3" XGA Active Color Display (2MB High Speed VRAM)
- 150MHz Pentium Processor (32-bit PCI Architecture)
- 16MB EDO RAM (exp. to 80MB)
- 2.1GB IDE HDD, int. 28.8 Modem
- 10X int. CD-R, Dual Stereo Speakers
- Lithium-ion Battery, 3-year Warranty

$3999

olivetti

Echo P100C

- Pentium® 100MHz
- 11.3" DSTN SVGA 16.7M Color Display
- 8MB RAM, 1.3GB HDD
- 6X CD-ROM Drive
- 2 Stereo Speakers
- Built-in 16-bit, Sound Blaster Compatible
- 2.3 Hours NiMH Battery Life

$1889

Call for listing on the *NEW* Olivetti Echo Pro Series.

MAGITRONIC

THE POWER OF VALUE

Pentium 620 Series

- Pentium 166MHz Processing Speed
- 12.1" SVGA Active Color Display
- 16MB EDO RAM
- 2.1Gigabyte Hard Drive
- 6X CD-ROM Drive
- Built-in Speaker & Mic
- 32-Bit PCI Local Bus w/ 1MB Video RAM
- Built-in 16-bit Stereo Audio
- Built-in Trackpad
- PC Card Slots, Type II & Type III
- Windows® 95 and **Lotus Smart Suite**
- 2-Yr Warranty, 24-hr. Technical Support

FREE CARRYING CASE!

Pentium 166MHz **$3779**

IBM

ThinkPad 760ED

P-133MHz, 12.1" Active Color, 28.8Kbps Modem & 1.2GB Hard Drive!

12.1" ACTIVE COLOR

- 16MB RAM, 1MB VRAM
- 6X-speed CD-ROM Drive
- 3.1-9.0-hr. Li-ion Battery
- PC Card Slots, 2 Type II or 1 Type III
- Video Capture & MPEG 2 Playback
- 16-bit Stereo Wavetable Audio, Sound Blaster Support

$5455

Now Over 80,000 products available! Call today.

Megahertz by U.S. Robotics

High Standard, Affordable 28.8 Modem Price—

Megahertz 28.8kbps PC Card Fax Modems deliver the performance and compatibility of V.34 with the convenience of the built-in XJACK connector.

$239

U.S. Robotics

The Intelligent Choice in Data Communications

Sportster Winmodem™ Internal 28.8

FREE FAX & INTERNET SOFTWARE!!

- Max. throughput 115,200 bps
- High speed data: 28.8 Kbps (Upgradable to 33.6)
- High speed fax: V.17 Group III 14,4000 and 9600 bps Class 1 & Class 2.0 send and receive fax

Mail-in Rebate Oct. 4-Jan. 4 '97

Upgradable to x2 56Kbps! **$115**

5-Year Warranty!

See the USR listings for modems Upgradable to 56Kbps!

UMAX

Vista S12 Scanner

Single-Pass 36-Bit Color Scanning

- 600x1200dpi Optical, 9600dpi max. Resolution
- Adobe PhotoDeluxe, Presto, PageManager OCR
- SCSII II interface

$549

Graphics for professionals

BEST SELLER

Vista S12 Scanner

Bundled with Adobe Photoshop Full Version.....$689

POWER PROTECTION

APC

AMERICAN POWER CONVERSION

Protect Your Investment!

UPS's Starting at **$99**

$25,000 Lifetime Equipment Protection on All UPS!

Protect ME! APC

BACK-UPS PRO PnP SERIES

The world's ONLY Plug-and-Play UPS with PowerChute Win 95 Management Software!

Back-UPS Pro 280/420 .....140/230
Back-UPS Pro 650 280

BACK-UPS SERIES

The World's Best Value in Power Protection!

MIDWEST BEST BUY!
Back Office BF250 (integrated surge suppressor) 129

Back-UPS 280B/400B/450.....99/145/169
Back-UPS 600/900/1250.....237/339/449

SMART-UPS VS SERIES

Includes PowerChute Power Management & Diagnostic Software for networks!

Smart-UPS 420 VS/650 VS 259/295
Smart-UPS 1000 VS/1400 VS 435/559

SMART-UPS SERIES

Performance Power Management for Advanced Business Networks!

Smart-UPS 450/700.....275/338
Smart-UPS 1400/2200 .....594/1029

SURGE SUPPRESSORS

Protect Net Network Cable Protector....23
Personal SurgeArrest Strip 6', 7-outlets.....19
Personal SurgeArrest 6', w/RJ11.....25
Personal SurgeArrest 6', w/CATV.....34

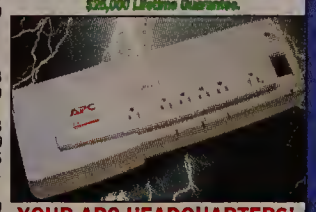
UPS MANAGEMENT SOFTWARE

PowerChute+ for Novell/Unix.....69/99
PowerChute+ for Win/Win NT.....59/69

NEW! **Back-UPS Office**

The Security of a Surge Suppressor with the power of a UPS - ALL IN ONE!

$25,000 Lifetime Guarantee.



YOUR APC HEADQUARTERS!

NETGEAR

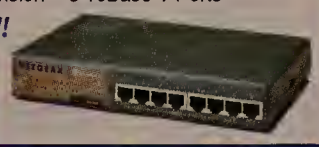
From BAY NETWORK

EN308 8-Port Ethernet Hub

- At-A Glance LED Indicators
- Switchable BNC/AUI Port
- MDI port for network expansion
- 8 10Base-T Ports

EASY INSTALLATION!!

$115



MEMORY MARKETPLACE

MEMORY $6.50 per MB

FedEx FREE*

100'S of upgrades available. Call a *MEMORY SPECIALIST* today!

All orders under $200 are shipped UPS Ground FREE.

NOTEBOOK MEMORY

AST Memory Modules

Ascentia J, 8MB/16MB/32MB.....79/129/289
Ascentia P Series, 8/16MB 89/159
Ascentia 800N Series, 4 / 8/16MB....89/79/159
Ascentia 950N Series, 8MB/16MB 99/159

Compaq Memory Modules

Armada 1120, 1120T, 8MB/16MB.....85/149
Armada 4100 Series, 8/16/32MB ...89/149/299
LTE 5000 Series, 8 / 16/ 32MB.....79/159/289

Hewlett Packard Memory Modules

Omnibook 800 Series, 8MB/16MB 105/195
Omnibook 4000 Series, 4MB /16MB 84/179

IBM Thinkpad Modules

Thinkpad 365X/XD, 8 /16/32MB.....99/149/399
Thinkpad 750 486, 4/8/16/32.....119/139/219/379
Thinkpad 760C/CD Series, 8/16.....89/159

NEC Memory Modules

Versa S Series, 4/8/16.....52/89/177
Versa 4000, 8/16/32MB 89/189/299
Versa 6000, 8/16/32MB 119/169/299

Toshiba Memory Modules

Satellite Pro 420CDS/CDT, 8/16/32 ..99/159/269
Portege 610 Series, 8/16/16MB 105/159/269
Portege 650CT, 16/32/64 .....149/449/CALL
Tecra 500CS/CDT, 16/ 32MB.....169/364
Tecra 510CDT, 8/16MB.....99/179
Tecra T700 Series, 8/16/32.....92/259/CALL
Tecra T720 Series, 16/32 .....169/339
Tecra T730 Series, 8/16/32.....98/194/349

DESKTOP MEMORY

AST

Advantage 800 8/16/32MB 62/114/239
Manhattan P5000 16/32/64MB....169/279/557

COMPAQ

Deskpro XL 500 8/16/32/64.99/179/339/669
Presario 5500 4/8/16/32.....49/79/149/289
Proliant 5000 64/128/256 .....716/1303/2769

DELL

Dimension XPS P Series 16/32/64 .....CALL
Performance Series 4/16.....CALL

GATEWAY 2000

Destination D-5 8/16/32 .....109/219/389
G6 Series 8/16/32 .....109/229/399

HEWLETT PACKARD

Pavilion 8/16/32.....91/189/349
Vectra 500 Series 16/32/64 .....189/352/678

IBM

Aptiva M40/M41, 8/16/32.....70/143/279
PC 300/700, Desktops/MT 8/16/32...89/189/332

SIMM MEMORY

1MB X 32 - 60NS/70NS SIMMS 37/36
1MB X 32 - 60NS/70NS EDO SIMMS....39/38
2MB X 32 - 60NS/70NS SIMMS 68/67
2MB X 32 - 60NS/70NS EDO SIMMS..70/69
4MB X 32 - 60NS/70NS SIMMS.....126/125
4MB X 32 - 60NS/70NS EDO SIMMS....128/127
1MB X 36 - 60NS/70NS SIMMS.....44/43
2MB X 36 - 60NS/70NS SIMMS.....69/68
4MB X 36 - 60NS/70NS SIMMS.....139/138

Expansion Boards, Desktop Memory and Printer Memory Available.

LOWEST prices in the industry!

Call for current price changes.

Call Our *Memory Specialists* Today!

800-770-4348

CALL FOR A FREE CATALOG!

Please refer to this code when ordering. **KEY CODE CW03/7**

PCWORLD MARCH '97

NATIONAL DIRECT ORDER LINE

800-65-WORKS

Where Corporate America Shops!

800-659-6757

MEMBER

DISCOVER NOVUS VISA MasterCard

Circle 169 on reader service card

THE BEST CHOICE FOR CORPORATE PROFESSIONALS!

SHARP

Smarter Notebooks for Sharp Minds!

SHARP PC-9080 Notebook

Sharp continues to be the leader with large 12.1" SVGA color LCDs. The PC-9080 notebook comes complete with a 32-bit PCI-bus video controller with Windows 95 DCI graphics accelerators to enhanced your systems performance by enabling Windows 95 and other graphics intensive applications to run more quickly.

- 133MHz Intel Pentium Processor (1024x768 Resolution)
- 1.3GB Modular Hard Drive
- 16MB RAM expandable to 64MB
- Stereo Sound 16-Bit Sound Board
- 6X Modular CD-ROM
- Infrared Communication Port

	Processor	Display	RAM	HDD	Modem	CD-ROM	Weight	Price
NEW! SHARP WIDENOTE SERIES								
PC-W100D	Pent-133	11.2" Dual, 1024x600 Resolution	16MB	1.1GB	28.8Kbps	n/a	4.6 lbs	$2739
PC-W100T	Pent-133	11.2" TFT, 1024x600 Resolution	16MB	1.1GB	28.8Kbps	n/a	4.6 lbs	$3299
BEST SELLING SHARP NOTEBOOKS								
PC-9020	Pent-120	12.1" Dual, 800x600 Resolution	16MB	1.1GB	n/a	8X Removable	7.3 lbs	$1879
PC-9080	Pent-133	12.1" TFT, 1024x768 Resolution	16MB	1.3GB	n/a	6X Removable	7.3 lbs	$4149
PC-9300D	Pent-150	12.1" Dual, 800x600 Resolution	16MB	1.44GB	n/a	10X	7.3 lbs	CALL
PC-9300T	Pent-150	11.3" TFT, 1024x768 Resolution	16MB	1.44GB	n/a	10X	7.3 lbs	CALL

All models listed above includes Glidepad, Infrared, 16-bit sound and speakers.

MIDWEST COMPUTER WORKS

Where Corporate America Shops!

800-440-8837

DISCOVER NOVUS · VISA · MasterCard · DHL WORLDWIDE EXPRESS · FedEx

FAST SHIPPING, NO PROBLEM! WE DELIVER WHEN YOU NEED IT.

✓ Knowledgeable Sales Staff ✓ Fast Delivery ✓ Quality Top Name Brands ✓ Technical Support

30-Day Money Back Guarantee • No Surcharge for Credit Cards • Leasing Available • Prices are subject to change • International Orders Require Payment by Wire Transfer or AMEX.

Circle 157 on reader service card

GET ANY 5 BOOKS FOR ONLY $4.95

when you join

The Computer Book Club®

YES! Rush me the following titles, billing me just $4.95 (plus shipping/handling & sales tax.) Enroll me as a member of *The Computer Book Club®* according to the terms outlined in this ad. If not satisfied, I may return the books within 10 days for a full refund and my membership will be cancelled. I agree to purchase just 3 more selections at regular Club prices during the next 2 years and may resign anytime thereafter.

Code #'s of my books for $4.95

If you select a book that counts as 2 choices, write the book number in one box and XX in the next.

NAME _____ PHONE _____

SIGNATURE _____
(required on all orders)

ADDRESS/APT. # _____

CITY _____ STATE _____ ZIP _____

Offer valid for new members only, subject to acceptance by The Computer Book Club®. U.S. orders are shipped 4th Class Book Post. Canada must remit in U.S. funds drawn on U.S. banks. Applicants outside the U.S. and Canada will receive special ordering instructions. A shipping/handling charge & sales tax will be added to all orders.

PCW397

GET ANY 5 BOOKS FOR ONLY $4.95

when you join

The Computer Book Club®

YES! Rush me the following titles, billing me just $4.95 (plus shipping/handling & sales tax.) Enroll me as a member of *The Computer Book Club®* according to the terms outlined in this ad. If not satisfied, I may return the books within 10 days for a full refund and my membership will be cancelled. I agree to purchase just 3 more selections at regular Club prices during the next 2 years and may resign anytime thereafter.

Code #'s of my books for $4.95

If you select a book that counts as 2 choices, write the book number in one box and XX in the next.

NAME _____ PHONE _____

SIGNATURE _____
(required on all orders)

ADDRESS/APT. # _____

CITY _____ STATE _____ ZIP _____

Offer valid for new members only, subject to acceptance by The Computer Book Club®. U.S. orders are shipped 4th Class Book Post. Canada must remit in U.S. funds drawn on U.S. banks. Applicants outside the U.S. and Canada will receive special ordering instructions. A shipping/handling charge & sales tax will be added to all orders.

PCW397

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS MAIL PERMIT NO. 4474 COLUMBUS, OH

POSTAGE WILL BE PAID BY ADDRESSEE

THE COMPUTER BOOK CLUB®
A Division of The McGraw-Hill Companies
P.O. Box 182598
Columbus, OH 43272-3025

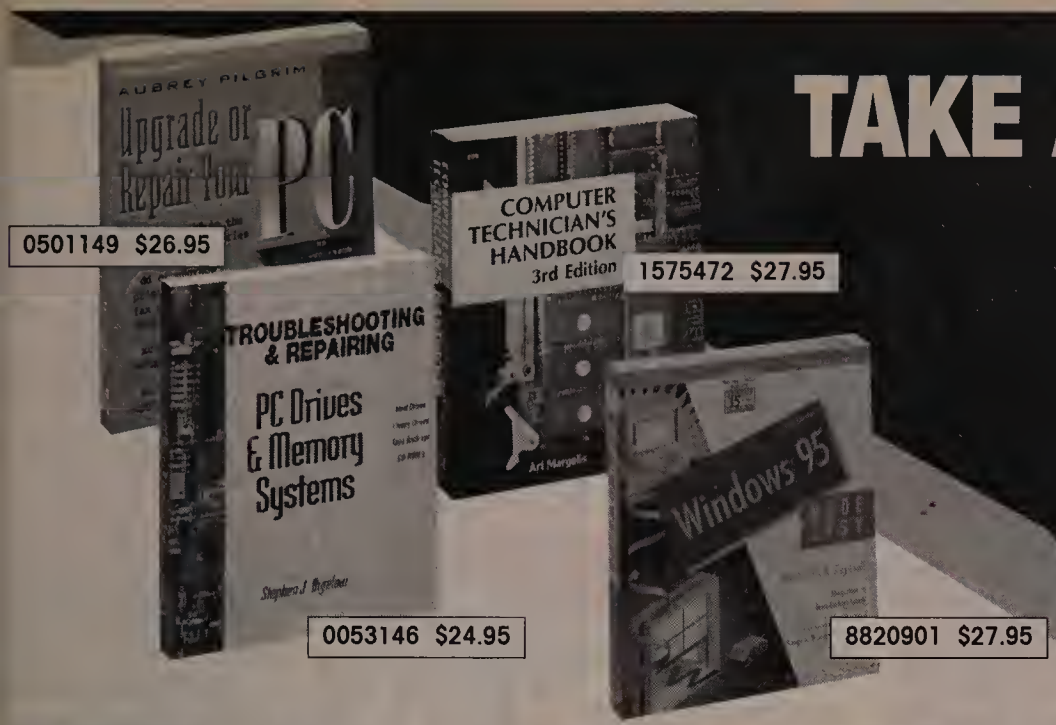
NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS MAIL PERMIT NO. 4474 COLUMBUS, OH

POSTAGE WILL BE PAID BY ADDRESSEE

THE COMPUTER BOOK CLUB®
A Division of The McGraw-Hill Companies
P.O. Box 182598
Columbus, OH 43272-3025

TAKE ANY 5 BOOKS FOR ONLY $4.95 when you join The Computer Book Club®



Values to $159.80

As a member of *The Computer Book Club*...you'll enjoy receiving Club bulletins every 3-4 weeks containing exciting offers on the latest books in the field at savings of up to 50% off the regular publishers' prices. If you want the Main Selection, do nothing and it will be shipped automatically. If you want another book, or no book at all, simply return the reply form to us by the date specified. You'll have at least 10 days to decide. If you ever receive a book you don't want due to late delivery of the bulletin, you can return it at our expense. And you'll be eligible for FREE BOOKS through the Bonus Book Program. Your only obligation is to purchase 3 more books during the next 2 years, after which you may cancel your membership at any time. PCW397

☎ Phone: 1-614-759-3666 (8:30 am to 5:00 pm EST Monday-Friday) • Fax: 1-614-759-3749 (24 hours a day, 7 days a week)

If cord is missing, write to:The Computer Book Club®, A Division of The McGrow-Hill Companies, P.O. Box Box 549, Blacklick, OH 43004-9918.

All books are softcover unless otherwise noted. Publishers' prices shown. If you select a book that counts as 2 choices, write the book number in one box and XX in the next. A shipping/handling charge & sales tax will be added to all orders. ©1997 CBC

MORE PROFIT! MORE SALES! MORE CUSTOMERS!

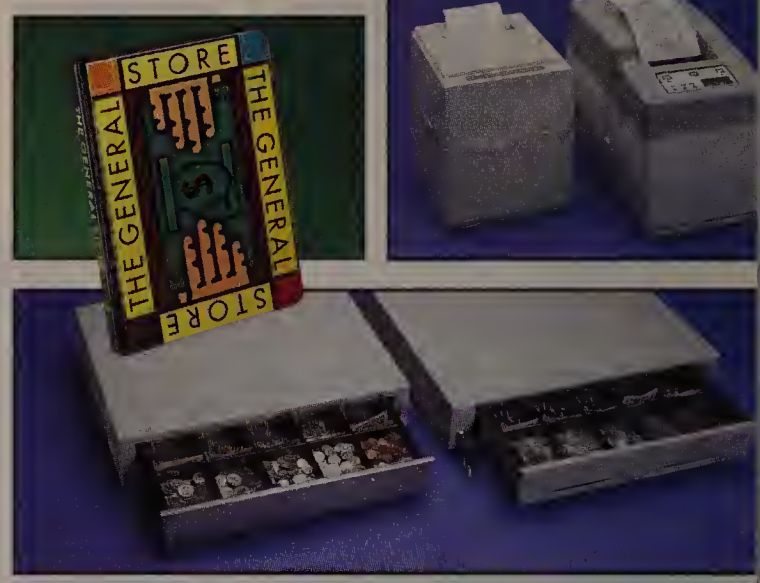
Save Time, Reduce Theft, Speed Checkout with

The General Store Retail Management System

Since 1983, **The General Store** has been the system of choice by thousands of retail and chain stores nationwide. Known for its ease of use, flexibility, and lightning speed, **The General Store** is ideal for most retail environments. At $395, **The General Store** starter kit offers over 250 of the most desired point of sale features. A clerk can learn to use it in minutes. Your customers are processed in seconds.

THE GENERAL STORE — SOFTWARE

PC AMERICA
HARDWARE SOLUTIONS



Flexible Enough for Any Business

apparel/clothing/shoe
appliance
art gallery
automotive/tire
beauty salon/supply
bicycle/motorcycle
book
bridal and tuxedo
card shop/gift shop
computer
convenience/fast food
dry cleaner
eyeglass
florist
furniture
gas station
sporting goods/golf/gun
grocery/bakery
hardware/locksmith
health/fitness center
janitorial supply
lawn and garden
jewelry
liquor
mail order
marine supply
music/record and tape
nail salon
office supply/stationery
pet
pharmacy
photography
plumbing & heating
specialty stores
toy /hobby
sports cards/uniform
...and YOUR STORE!

Increase your profits by more than 25%

Computerization pays for itself, saving you thousands of dollars, giving you peace of mind, and making the best use of your time. The General Store, with over 250 of the most desired point of sale features, will help you leapfrog past your competition by controlling costs, reducing errors and increasing efficiency.

- **Quicker Checkout**-barcode scanning (50% faster than a cash register), instantaneous no wait receipt printing system, automatic credit card verification, split tender, product lookup by any word, new items added at POS
- **Increased Accuracy**-100% accurate built-in barcode scanning and printing, instant price lookup, price quotes, serial number tracking, multiple pricing levels, multi-unit pricing (i.e. 3/$1.00)
- **Reduced Theft**-cash register reconciliation, salesperson tracking, password protection, pole display sale verification, accurate inventory tracking
- **Cost Reductions**-real time inventory control, dynamic update of item sales and inventory data, reorder point alarms, extensive reporting capabilities, multi vendor P.O. selection (5 vendors per item)
- **Better Business Decisions**-detailed reports and financial statements showing the status of your business, charge account credit limit checking, parts explosion for kits tracks every inventory item, built-in general ledger, accounts receivable and accounts payable
- **Better Customer Service**-customer purchase history, complete layaway, mail list management, instant customer lookup, multiple price level support by category of customer
- **Unique Features**-powerful size/ color matrix for clothing and shoe stores, electronic scale compatibility, convenience store/gas station pump compatible, supports 99 work stations per store, multi-store ready, FREE file conversions from 32 other POS systems

FREE!
Take a FREE 30-day General Store Test Drive
(call now for details)

Using another P.O.S. system? Call for **SPECIAL COMPETITIVE UPGRADE PRICE!!!!**

DEALERS WANTED!
Join our new dealer program. It's **FREE.** It's the fastest way to make money...**AND** we make it **EASY.** Call now for details.

PC AMERICA PRICE LIST

The General Store Profession Edition (single user, multisite ready)	**$1,295.0**
The General Store Network Edition (multisite ready)	**$1,995.0**
The General Store Starter Kit (abridged version)	**$395.0**
Cash Drawer	~~**$199.0**~~
Star/Citizen Receipt Printers	~~**$299.9**~~
Pole Display	~~**$299.0**~~
CCD Bar Code Reader	~~**$399.0**~~
Laser Bar Code Scanner	~~**$429.0**~~

*** Call for Competitive Prices**

1-800-PC-AMERICA

Call Toll Free 1-800-722-6374

Phone: 914-267-3500

PC America
60 N. Harrison Ave.
Congers, NY 10920

Fax: 914-267-35

Circle 195 on reader service card

WE WILL TRY TO MATCH OR BEAT ANY ADVERTISED PRICE. CALL FOR LATEST PRICING!!

WE ACCEPT PO'S FROM QUALIFIED FIRMS

30 DAY* MONEY BACK GUARANTEE

MEMORY

LIFETIME WARRANTY

SECURITY WILL CALL WINDOW NOW OPEN! NO SURCHARGE FOR MC, VISA AE & DISCOVER

HOT BOX SPECIALS

Limited Quantities So Hurry and Order!!

Compaq Contura 400, 410, 420, 430 - 4Meg ...$29.00
Compaq 1Meg V-Ram Pt. No. 171017-001 ....29.00
Thinkpad 750, 720, 700, 360, 355 - 4Meg 39.00
HP 4P, 4P Plus, 5M, 5P, 1600 w/2Meg 19.00
Cyrix DRX^2 for 16DX mach. Dbls. Your Speed! 69.00
NEC Versa E, M, P - 4Meg 29.00
Winbook XP - 8Meg 49.00
Epson 650C, 660C - 4Meg..........................39.00
Ultra TS38 - 4Meg................................39.00
Ambra N-75, N-100 - 4Meg 39.00
Midwest Micro Elite, Soundbook - 4Meg 39.00

72 PIN SIMMS (FPM, EDO)

	60NS	70NS	60NS
1 meg x 36 4 mg	39.00	36.00	36.00
2 x 36 8 mg	69.00	63.00	63.00
4 x 36 18 mg	114.00	109.00	109.00
8 x 36 32 mg	219.00	209.00	209.00
16 x 36 64 mg	699.00	689.00	689.00
1 x 32 4 mg	29.00	24.00	24.00
2 x 32 8 mg	46.00	42.00	42.00
4 x 32 16 mg	94.00	89.00	89.00
8 x 32 32 mg	194.00	189.00	189.00
16 x 32 64 mg	509.00	499.00	499.00
1 x 32 4 mg EDO	29.00	24.00	24.00
2 x 32 8 mg EDO	46.00	42.00	42.00
4 x 32 16 mg EDO	94.00	89.00	89.00
8 x 32 32 mg EDO	194.00	189.00	189.00

DIMMS (168 pin)

APPLE		
1 x 64	8Meg	45.00
2 x 64	16Meg	81.00
4 x 64	32Meg	189.00
8 x 64	64Meg	386.00
16x64	128Meg	1996.00
DELL, OPTIPLEX, GXPRO 200		
3.3V ECC, EDO	8Meg	106.00
3.3V ECC, EDO	16Meg	133.00
3.3V ECC, EDO	32Meg	269.00
3.3V ECC, EDO	64Meg	1176.00
3.3V ECC, EDO	128Meg	2359.00
DELL POWER EDGE 2100/4100		
3.3V ECC, EDO	8Meg	106.00
3.3V	32Meg	267.00
3.3V	64Meg	539.00
3.3V	128Meg	2359.00
3.3V	256Meg	4706.00
DELL & GATEWAY		
3.3V SDRAM	*8Meg*	*74.00*
3.3V SDRAM	*16Meg*	*133.00*
3.3V SDRAM	*32 Meg*	*269.00*
MOTOROLA (Apple Compatible)		
3.3V EDO	8Meg	67.00
3.3V EDO	16Meg	129.00
3.3V EDO	32Meg	239.00
3.3V EDO	64Meg	1099.00

ECC SIMMS

Pentium Pro 72 Pin (Install in pairs) / SIMMS
8Meg.........62.00
16Meg.........122.00
32Meg.........241.00
64Meg.........2349.00
128Meg.........4628.00

SIMM MODULES (Add $5.00 for SIPP)

	60NS	70NS	80NS	100NS
256 x 9	–	6.00	5.00	5.00
1Meg x 9 (3 chip)	11.00	8.00	8.00	–
1Meg x 9 (9 chip)	19.00	17.00	12.00	11.00
4Meg x 9	49.00	37.00	37.00	–
16Meg x 9 (9 chip)	139.00	136.00	136.00	–

CACHE MODULES

256K (160 pin) Pipeline Burst Cache Module $22.00 (Coast Celp)

512K (160 pin) Pipeline Burst Ceche Module $39.00 (Coast Celp)

256K (160 pin) Async Cache Module compatible with IBM Aptiva $59.00

256K (160pm) Async Coast Module $29.00

CACHE MEMORY

	12NS	15NS	20NS	25NS
8Kx8	–	6.50	6.00	5.50
32Kx8	9.00	4.50	4.25	4.00
32Kx8 (3.3V)	–	14.00	9.50	–
64Kx1	–	11.00	9.00	8.00
64Kx4	–	11.00	9.00	8.00
64Kx8	–	15.00 (5V)	19.00 (3.3V)	–
16Kx4	–	8.00	7.00	6.00
128Kx8	–	29.50	26.00	24.00
32x8 SOJ 3.3VDIT	12.00	11.00	9.00	

Call for SOJ Version

INTEL Math Chips

80287-XL	49.00
80387-DX (Does All)	49.00
80487-SX (Does All)	183.00
Intel SX (Does All)	49.00
Intel SL Mobil	39.00

Lowest price on Intel overdrive chips

Individual D-RAM Chips

MEMORY FOR IBM & APPLE

	60NS	70NS	80NS	100NS
1Megx1	5.00	4.00	2.00	2.00
1Megx4	19.00	18.00	17.00	–
1Megx4 (Zip Pk)	12.00	11.00	10.00	–
256x4(Page Dip)	7.25	6.75	6.50	5.95
256 4(Static Dip)	–	9.95	–	–
256x4(Page Zip)	9.25	9.00	8.95	–
256x4(Video Zip)	–	10.95	9.95	7.95
256x8(SOJ)	12.00	11.00	–	–
256x16 SOJ	39.00	29.00	–	–
256x16 SOJ Edo	39.00	–	–	–
256x16 Video Zip	49.00	39.00	–	–

Make Your 486 Run like a Pentium®

Kingston Turbo Chip – 3X Faster, for 486 Based Dx^2, Dx, Sx^2, Sx. . . . . .ONLY $129.00
Out performs Intel overdrive Pentium 83

AST MEMORY

Advantage 610, 810, 816	4Meg/8Meg/16Meg/32Meg/64Meg	39/78/124/248/469
Advantage Adventure 4000	4Meg/16Meg	39/124
Advantage Adventure 6000	4Meg/8Meg/16Meg/32Meg/64Meg	39/78/124/248/469
Advantage Adventure 8000	4Meg/8Meg/16Meg/32Meg	34/69/124/229
Advantage Pro 486 SX33, SX25	4Meg/8Meg/16Meg/32Meg	34/69/124/229
Bravo LC	4Meg/8Meg/16Meg/32Meg	34/69/124/229
Bravo LC 5100, 5133, 5166 (EDO, pairs)	4Meg/8Meg/16Meg/32Meg	39/69/144/249
Bravo MS	4Meg/8Meg/16Meg/32Meg	34/69/124/229
Bravo MS 5100, 133, 166 (EDD, pairs)	4Meg/8Meg/16Meg/32Meg	39/69/144/249
Bravo MS-T 6150 (pairs)	4Meg/8Meg/16Meg/32Meg	34/69/124/229
Manhattan G, V (pairs)	8Meg/16Meg/32Meg	69/129/239
Premmia 4/33, 4/50, MTE 433 (pairs)	4Meg/8Meg/16Meg/32Meg	39/69/129/239
Premmia 4/66D, SE 4/33, 4/66 (pairs)	4Meg/8Meg/16Meg/32Meg	39/69/129/239
Premmia LX P/60, MX 4/66, P75	4Meg/8Meg/16Meg/32Meg	34/59/119/219

All Other Models Available

NEC MEMORY

Ready 5010, 7010, 7020, 9010, 9022 (pairs)	4Meg/8Meg/16Meg/32Meg	39/69/119/239
Ready 951D, 9520, 9522, 9530, 9532 (pairs)	4Meg/8Meg/16Meg/32Meg	39/69/119/239
Ready 7022 (EDD, pairs)	4Meg/8Meg/16Meg/32Meg	39/69/129/249
Image P60, P90, D, P100E (pairs)	4Meg/8Meg/16Meg/32Meg	39/69/129/249

We Carry All NEC Memory

HEWLETT PACKARD MEMORY

Netserver 4/66LC-5/133LC (pairs)	4Meg/8Meg/16Meg/32Meg	49/79/129/249
Netserver LE 486SX33 – 4860X2 66	4Meg/8Meg/16Meg/32Meg	49/79/129/249
Netserver LH Plus 5/133, 5/166 (EDO, ECC)	16Meg/32Meg/64Meg/128Meg	Call
Netserver 4/33LM – 5/100LM (pairs)	4Meg/8Meg/16Meg/32Meg	49/79/139/249
Netserver 5/75LS – 5/133 LS4 (pairs)	4Meg/8Meg/16Meg/32Meg	49/79/139/249
Pavillion 5D1D-7170 (pairs)	4Meg/8Meg/16Meg/32Meg	49/79/129/249
Vectra 500 (EDO, pairs)	4Meg/8Meg/16Meg/32Meg	49/79/139/269
Vectra VA 6/180, 6/200 (EDO, pairs)	4Meg/8Meg/16Meg/32Meg	49/79/139/269
Vectra VE2 5/75 – 5/133 (EDO, pairs)	4Meg/8Meg/16Meg/32Meg	49/79/139/269
Vectra XA 6/180, 6/200 (EDD, pairs)	4Meg/8Meg/16Meg/32Meg	49/79/139/269
Vectra XM4 Series	4Meg/8Meg/16Meg/32Meg	49/79/139/269

We Carry Memory for ALL Models – Call

We also sell Memory for: Dell, Gateway, DEC, Sun, Zenith, Acer and Epson

NO SURCHARGE FOR MASTERCARD, AMEX, VISA OR DISCOVER. PURCHASE ORDERS ACCEPTED FROM FORTUNE 2000, GOVERNMENT & INSTITUTIONS. California orders add 8.25%sales tax. Returned orders or ordered wrong parts are subject to a 20% restocking fee (Memory chips not installed in boards.) We accept International orders shipped via UPS Air, APD, FPO orders welcome. Customers are expected to pay customs and "other" charges if shipped Int'l. All credit card charges verified for fraudulent use SORRY, NO REFUNDS AFTER 30 DAYS – EXCHANGES ONLY. If you receive defective merchandise we exchange only—no refunds We accept MC, VISA, Discover, AE, prepaid orders, purchase orders, wire transfer, COD (cashiers check) orders, cash & cashiers checks. Orders shipped by UPS, FEDX must be signed for.
• ALL MANFACTURER PART #'S ARE FOR REFERENCE ONLY • MINIMUM ORDER $40.00 • NO REFUNDS ON SHIPPING

*certain restrictions apply All prices final on date of sale

IBM PS/1, PS/2 MEMORY MODULES

Aptiva 300, 500 Series	4Meg/8Meg/16Meg/32Meg	34/59/119/219
Aptiva 700 Series (pairs)	4Meg/8Meg/16Meg/32Meg	34/59/119/219
Aptiva A Series (pairs)	4Meg/8Meg/16Meg/32Meg	34/59/119/219
Aptiva C Series (EDD, pairs)	4Meg/8Meg/16Meg/32Meg	39/59/144/249
Aptiva M Series	4Meg/8Meg/16Meg/32Meg	34/59/119/219
PC 330 Models 6571-6576	4Meg/8Meg/16Meg/32Meg	34/59/119/219
PC 330 Model 6577 (EDD, pairs)	4Meg/8Meg/16Meg/32Meg	39/59/144/249
PC 340 (EDO, pairs)	4Meg/8Meg/16Meg/32Meg	39/59/144/249
PC 350 Models 6581-6585	4Meg/8Meg/16Meg/32Meg	34/59/119/219
PC 350 Model 6586 (pairs)	4Meg/8Meg/16Meg/32Meg	34/59/119/219
PC 350 Model 6587 (EDO, pairs)	4Meg/8Meg/16Meg/32Meg	39/59/144/219
PC 360	4Meg/8Meg/16Meg/32Meg	44/69/129/229
PC 730 Models 6875-6876 (pairs)	4Meg/8Meg/16Meg/32Meg	49/69/139/259
PC 730 Model 6877 (EDD, pairs)	4Meg/8Meg/16Meg/32Meg	39/59/144/219
PC 750 Models 6885-6886 (pairs)	4Meg/8Meg/16Meg/32Meg	49/69/139/259
PC 750 Model 6887 (EDD, pairs)	4Meg/8Meg/16Meg/32Meg	39/59/144/219
PC Server 310 (pairs)	4Meg/8Meg/16Meg/32Meg	49/69/139/259
PC Server 500 (ECC, pairs)	4Meg/8Meg/16Meg/32Meg	59/79/119/249
P/S 1, 30 Pin Simms	1/Meg/4Meg	12/39
P/S 1, 72 Pin Simms	4Meg/8Meg/16Meg/32Meg	49/79/139/249
P/S 2, 55SX, 65SX	4Meg	49
P/S 2, 53, 53LS, 56, 57	4Meg/8Meg	49/79
P/S 2, 95XP (ECC, pairs)	4Meg/8Meg	49/79
P/S 2 Server, 95, 195, 295 (ECC, pairs)	4Meg/8Meg/16Meg/32Meg	59/79/119/249

Call for All Rise 6000 Memory — Call for All Valuepoint Memory

IBM NOTEBOOK & LAPTOP MEMORY

Thinkpad 340, 345, 355, 360, C, CE	4Meg/8Meg/16Meg	49/99/179
Thinkpad 365C, CS, CD, E, ED	4Meg/16Meg	49/189
Thinkpad 365X, 365XD	8Meg/16Meg/32Meg	79/179/539
Thinkpad 500, 510CS	4Meg/8Meg/16Meg	59/99/209
Thinkpad 560	8Meg/16Meg/32Meg	109/189/539
Thinkpad 700, 720, 750, CL57SX	4Meg/8Meg/16Meg/32Meg	49/109/189379
Thinkpad 701, 701C	4Meg/8Meg/16Meg/32Meg	50/89/169/719
Thinkpad 730T, TE	4Meg/8Meg/16Meg	49/109/189
Thinkpad 755C, CE, CD, CS	4Meg/8Meg/16Meg/32Meg	49/109/179/339
Thinkpad 760C, CD, L, LD	4Meg/8Meg/16Meg/32Meg	89/169/339
Thinkpad 760E, ED, EL, ELD	8Meg/16Meg/32Meg	99/179/539

COMPAQ MEMORY MODULES

Deskpro 486/25, 33L, 50L	2Meg/8Meg/32Meg	39/99/249
Deskpro 3/25I, 33I, 4/25IS, 66I	2Meg/4Meg/8Meg	39/69/89
Deskpro 386, 486 M Series	2Meg/4Meg/8Meg	39/69/89
Deskpro M Series Expansion Board	0K (no memory)	119.00
Deskpro 450, 4100, 575, 590, 5100, 5133	4Meg/8Meg/16Meg/32Meg	29/49/89/189
Deskpro 575, 5120, 5133, 5150, 5160 (EDD, pairs)	4Meg/8Meg/16Meg/32Meg	29/49/89/189
Deskpro 2000, 4000, 6000 Series (EDD, pairs)	4Meg/8Meg/16Meg/32Meg	29/49/89/189
Deskpro 5/60M, 5/66M, XE560 (quads)	2Meg/4Meg/8Meg/16Meg/32Meg	39/49/69/139/239
Deskpro XL (pairs)	4Meg/8Meg/16Meg/32Meg	49/69/139/239
Deskpro XL 6150, 6200 (ECC, pairs)	8Meg/16Meg/32Meg/64Meg, 128Meg	Call
Deskpro 2000, Presario 4112, 4122, 4712, 4716, 5526, 5528	1Meg Video	69
Presario 5536, 9232, 9234, 9240, 9250, 9260, 9642, 9660	1Meg Video	69
Presario 510, 520, 524, 660, 720, 724, 860	4Meg/8Meg/16Meg/32Meg	29/49/89/189
Presario 920, 924, 954, 974, 978, 992	4Meg/8Meg/16Meg/32Meg	29/49/89/189
Presario 1000, 1010, 1020, 1030	8Meg/16Meg/32Meg	69/129/249
Presario 833, 850, 860, 866	4Meg/8Meg/16Meg/32Meg	39/64/119/239
Presario 5528, 7110, 7152	4Meg/8Meg/16Meg/32Meg	29/49/89/189
Presario 7170, 7180, 9536, 9546, 9548, 9564 (pairs)	4Meg/8Meg/16Meg/32Meg	29/49/89/189
Presario 9232, 9234, 9240, 9250, 9642, 9660 (pairs)	4Meg/8Meg/16Meg/32Meg	29/49/89/189
Proliant 1000 5/60, 2000, R, 4000, R (quads)	4Meg/8Meg/16Meg/32Meg	39/64/119/239
Proliant 1500, 1500R (pairs)	4Meg/8Meg/16Meg/32Meg	39/64/119/239
Proliant 4500, 4500R (quads)	4Meg/8Meg/16Meg/32Meg/64Meg	39/64/119/239/599
Proliant 5000, 5000R (pairs)	32Meg/64Meg/128Meg/256Meg	Call
Prolinea 4/25S, 4/33, 4/66	2Meg/4Meg/8Meg	39/49/69
Prolinea (enhanced), MT	4Meg/8Meg/16Meg/32Meg	49/69/129/229
Prolinea 575, 590, 5100, 5120, 5133 (pairs)	4Meg/8Meg/16Meg/32Meg	39/69/119/239
Prolinea 5100, 5120, 5133, 5150, 5166 (EDD pairs)	4Meg/8Meg/16Meg/32Meg	39/69/139/259
Prolinea 575E, 100E, 120E, 575MX (pairs)	4Meg/8Meg/16Meg/32Meg	39/69/119/239
Prolinea 590MX, 5120MX (pairs)	4Meg/8Meg/16Meg/32Meg	39/69/119/239
Prolinea 6150E, 6180E (pairs)	8Meg/16Meg/32Meg	69/119/239
Prosignia 300 5/75, 5/90, 5/120, 5/150 (pairs)	4Meg/8Meg/16Meg/32Meg	39/69/119/259
Prosignia 500 5/90, 5/120, 5/150 (pairs)	4Meg/8Meg/16Meg/32Meg	39/69/119/259

COMPAQ NOTEBOOK/LAPTOP MEMORY

Armada 1120, T	8Meg/16Meg/32Meg/64Meg	119/199/Call/Call
Armada 4100, 4110, 4120, 4130 (pairs)	4Meg/8Meg/16Meg	69/99/169
Concerto 4/25, 433	4Meg/8Meg/16Meg	79/99/169
Contura 4/25, C, CX	4Meg/8Meg/16Meg	79/99/169
Contura 400C, 400CX, 410C, 410CX	4Meg/8Meg/16Meg	79/99/169
Contura 420C, 420CX, 430C, 430CX	4Meg/8Meg/16Meg/24Meg	49/79/169/239
Contura Aero 4/25, 4/33	4Meg/8Meg/16Meg	69/99/169
LTE 5000, 5100, 5200, 5300	8Meg/16Meg/32Meg/64 Meg Kit	99/149/266/513
LTE Elite 440C, CX, 4/75CX	4Meg/8Meg/16Meg/24Meg	49/89/179/249
LTE Lite 4/25	4Meg/8Meg/16Meg	29/89/169

LASER PRINTER MEMORY UPGRADES

AMOUNT UPGRADED	OK Bd	256k	1	2	3	3.5	4	5	6	8	16	32
Brother 630, 631, 641, 645	–	–	69	89	–	–	–	–	–	–	–	–
Canon LBP 430	–	–	39	–	–	–	49	–	–	–	–	–
Canon LBP 860, 1260	–	–	–	19	–	–	49	–	–	79	119	229
Canon LBP4, 4Lite, 4plus	–	–	129	179	–	–	–	–	–	–	–	–
Epson 6000, Action Laser	–	–	–	79	–	–	149	–	–	–	–	–
Epson Action Laser 1100, 1600	–	–	19	29	–	–	79	–	–	109	239	–
Epson Action Laser II	–	–	74	–	173	–	–	272	–	–	–	–
Epson 8000, 1800, 4000, 4100, 4300	–	–	89	–	173	–	–	272	–	–	–	–
Epson 1000, 1500, 5000, 5200	–	–	–	69	–	–	138	–	–	–	–	–
HP 2, 2D–	–	–	–	69	–	–	99	–	–	–	–	–
HP 3, 3D, 3P, 2P 2P+	–	–	–	*69*	–	–	*99*	–	–	–	–	–
HP 4, 4M, 4SI, 4StMX	–	–	–	19	–	–	49	–	–	79	–	–
HP 4P, 4PLUS, 4MPm 1600, 1600CM	–	–	9	19	–	–	39	–	–	69	–	–
HP 4L	–	–	29	–	–	–	–	–	–	–	–	–
HP 3SI	–	–	9	–	–	–	39	–	–	69	–	–
HP 5L	–	–	49	74	–	–	89	–	–	149	–	–
HP 5P, 5MP, 4V, 4MV	–	–	9	19	–	–	39	–	–	69	99	–
HP Design Jet 600, 650, 200	–	–	–	19	–	–	39	–	–	69	109	219
HP Deskjet 500, 500C, 510, 550,560	–	*29*	–	–	–	–	–	–	–	–	–	–
HP Deskjet 1200C, 1200C/P	–	–	–	39	–	–	49	–	–	89	–	–
HP Paintjet XL300	54	–	–	–	–	–	69	–	–	144	299	–
IBM Laser 4019, 4019E	–	–	–	–	–	139	–	–	–	–	–	–
IBM Laser 4029, 4037	–	–	–	–	–	–	69	–	–	–	–	–
IBM Laser 4039, 4079	–	–	–	*39*	–	–	*69*	–	–	*99*	–	–
Konica LP-3110, 3115	–	–	119	189	239	–	–	–	–	–	–	–
Lexmark Medley 4C, 4x, 4SX	–	–	Call	Call	Call	–	–	–	–	–	–	–
Lexmark, Optra L, LX, R, RX	–	–	–	–	–	–	49	–	–	69	109	239
Lexmark Valuwriter 300,600	–	–	29	39	–	–	89	–	–	–	–	–
Lexmark Winwriter 200, 400, 600	–	–	29	39	–	–	89	–	–	–	–	–
NEC 90, 290	–	–	–	89	–	–	–	–	–	–	–	–
NEC 95, 97	–	–	–	79	–	–	–	–	–	–	–	–
Oki 400	–	–	–	79	–	–	–	–	–	–	–	–
Oki 400E, 400EX, 410E, 410EX	–	–	89	109	169	–	189	–	–	–	–	–
Oki 810E, EX, 800E, EX, 610E, EX	–	–	29	39	–	–	69	–	–	99	129	–
Oki 830, 840	–	–	–	89	–	–	–	–	–	–	–	–
Oki 2350, 2450	–	–	Call	Call	–	–	–	–	–	–	–	–
Panasonic 4420/4450i	–	–	–	99	–	–	169	–	–	–	–	–
Panasonic 4410/4430	–	–	–	*89*	–	–	*129*	–	–	–	–	–
Panasonic 4450	–	–	89	–	–	–	–	–	–	–	–	–
Panasonic 4400/5400	–	–	89	99	–	–	189	–	–	–	–	–
Panasonic 4440, 5410	–	–	79	99	–	–	159	–	–	–	–	–
Panasonic 6500	–	–	14	29	–	–	79	–	–	–	–	–
Sharp 9400, 9460, 9600, 9700E	–	–	69	99	–	–	149	–	–	–	–	–
Sharp 9500, E, H, 9700, H	–	–	79	–	–	–	259	–	–	–	–	–
TI XL/PS17/PS35	–	–	49	–	–	–	–	–	–	–	–	–
TI Microlaser Pro E, Powerpro, Pro 600	–	–	89	129	–	–	189	–	–	329	–	–
TI Microwriter	–	–	79	119	–	–	–	–	–	–	–	–

CUSTOMER SERVICE & TECHNICAL: OPEN M–F, 9–4 PST

All products brand new & guaranteed • We buy excess inventory

Trademarks are registered with their respective companies.

L.A. TRADE

22825 Lockness Avenue • Torrance, CA 90501

BATTERIES

★ ★ CALL FOR NOTEBOOK AND LAPTOP BATTERIES ★ ★
Compaq, IBM, Toshiba, Epson, AST, TI and More!!

ACER 730 thru 789	$129	NEC Versa S	$115
Canon Innova Book 350, 360, 475	134	Sharp 3010, 3020, 3050, 3060, 3150	185
Compaq Contura 3/25, 4/25	109	Sharp 3030, 3040, 3070	136
Compaq Aero, 400, 410, 420, 430	109	Sharp 8700, 8800, 8900	160
Compaq LTe 5000 Series	109	TI Exstensa 450, 455, 510, 515	139
Epson Action Note 650, 660	162	TI Exstensa 550, 555, 560, 570	149
Epson Action Note 800, 866, 880, 910	154	TI Exstensa 600, 605, 650	181
IBM Thinkpad 355, 360	92	Toshiba 600, 610	Call
IBM Thinkpad 365 C, ED, XD	92	Toshiba 400, 405, 410, 415, 420, 425, 430	193
IBM Thinkpad 701	92	Toshiba 100, 105, 110, 115, 200, 205	89
IBM Thinkpad 750, 755	159	Toshiba 2100 Series	89
IBM Thinkpad 755 CD, CE, CV, CX	159	Toshiba 2400, 2450, 1900, 1950, 1960	109
NEC Versa 2000, 2200, 2205	Call	Toshiba 4700, 4800, 4850, 4900	109
NEC Versa E, V	118	Toshiba T4500, T4600	139

TOSHIBA LAPTOP MEMORY

MODEL	AMT. UPGRADED	PRICE
Tecra 500/P650	*8Meg/16Meg/32Meg/48Meg/128Meg*	*65/119/239/535/1755*
Tecra 700 (SDRAM)	*8Meg/16Meg/32Meg*	*89/159/279*
Tecra 710, 720	*8Meg/16Meg/32Meg/64Meg/128Meg*	*99/169/309/1020/2040*
T2000SXE/2200SX/T1800, 1850, C	8Meg	94.00
T2100, 2105, 2150, 2155, 2110, 2115	4Meg/8Meg/16Meg/24 Meg	49/79/139/219
T4500, C, T4600, T4700, T1900, C, T1910, T1950 (3.3 v)	4Meg	59.00
T4500, C, T4600, T4700, T1900, C, T1910, T1950 (3.3 v)	8Meg	79.00
T4500, C, T4600, T4700, T1900, C, T1910, T1950 (3.3 v)	16Meg/32Meg	159/279
T3400CT, T2400, T3600	4Meg/8Meg/16Meg/24Meg	89/119/179/Call
T100, 105, 110, 115, 205, 210	*8Meg/16Meg/32Meg*	*99/169/279*
T400, 405, 410, 415, 420, 425	*8Meg/16Meg/32Meg*	*99/169/279*
T400CS, 400CDT, T100, 105 Edo	*8Meg/16Meg/32Meg*	*99/169/279*
T600, 610, CT Edo	8Meg/16Meg/32Meg	99/169/279

NOTEBOOK, LAPTOP MEMORY

MODEL	AMT. UPGRADED	PRICE
ACERNote 730C, 735C, 760C, 760CX, 780CX	2Meg/4Meg/8Meg	49/69/99
ACERNote 763, 765, 782, 784, 786	4Meg/8Meg/16Meg	59/79/159
ACERNote Light 350, 352, 355	4Meg/8Meg/16Meg	69/99/169
ACERNote Light 356, 358, 359, 361 (pairs)	4Meg/8Meg/16Meg	69/99/169
ACERNote Nuovo 971, 972	*8Meg/16Meg/32Meg*	*69/125/239*
ACERNote Pro 950, 954, 955, 957, 959 (pairs)	4Meg/8Meg/16Meg	79/109/189
Ambra N Series	*4Meg/8Meg/12Meg/16 Meg*	*89/109/139/189*
Ambra SN Series	4Meg/16 Meg	79/179
Ambra N-75, N-100	4Meg/8/16	49/89/169
AST Ascentia A Series	*8Meg/16Meg/32Meg/64Meg*	*75/139/269*
AST Ascentia P30, P50	*8Meg/16Meg/32Meg*	*89/189/309*
AST Ascentia J10, J30, J50	*8Meg/16Meg/32Meg/40Meg Kit*	*79/159/309/359*
AST Ascentia 900N, 800N, 810, 910	8Meg/16Meg	99/189
AST Ascentia 950	8Meg/16Meg	99/189
AST Bravo & Explorer	*4Meg/16Meg*	*79/219*
AST Notebook Prem Exec 386SX/20/25/25L	4Meg	69.00
AST Power Exec 3/25C, 425EL, 425SL	4Meg/16Meg	79/189
AST Power Exec 4/33SL	4Meg/16Meg	79/189
AT&T Globalyst 130, 200, 250	4Meg/8Meg/16Meg	69/99/149
Austin DX4, DX2, SX2, SX Series	4Meg/16Meg	79/219
Austin Edge	*8Meg/16Meg*	*109/199*
Austin Edge Duet	*16Meg/32Meg*	*199/399*
Austin Vista	*4Meg/8Meg/16Meg/24Meg*	*69/99/219/349*
Canon 1100	4Meg/8Meg/16Meg	Call
Canon Innova Book 150, 175	4Meg/16Meg	69/169
Canon Innova Book 200LS	4Meg/8Meg/16Meg/24Meg	69/99/219/349
Canon Innova Book 350CD, 360, 475	*8Meg/16Meg*	*89/169*
CTX EZ Book 5x86 Pent. Series	*4Meg/8Meg/16Meg*	*69/99/169*
DEC HiNote, Ultra HiNote	4Meg/8Meg/16Meg	69/109/189
DEC HiNote Ultra, Ultra II	*4Meg/8Meg/16Meg*	*79/109/179*
DEC HiNote VP 520, 525, 535	*8Meg/16Meg/32Meg*	*89/139/289*
DEC HiNote VP 5100, 5120	*8Meg/16Meg/32Meg/64Meg*	*89/179/399/599*
DEC HiNote VP	*8Meg/16Meg/32Meg*	*89/189/299*
Dell Latitude LM (pairs)	*4Meg/8Meg/16Meg*	*69/99/189*
Dell Latitude 433, C, CX	4Meg/16Meg	79/199
Dell Latitude LMP (pairs)	4Meg/8Meg/16Meg	79/119/199
Dell Lattitude LX, M	4Meg/8Meg/16Meg	79/119/199
Dell Latitude XP, XPI	4 Meg/8Meg/16Meg	79/119/199
Epson ActionNote 650, 650c, 660c, 660cx	4Meg/8Meg/16Meg	69/109/189
Epson ActionNote 700, 700c, 700cx	4Meg/16Meg	79/189
Epson ActionNote 880, 866c, 890	4Meg/8Meg/16Meg/20Meg	59/89/159/199
Epson ActionNote 4LC/25, 4LC/33 4SLC/2-50, 4000	6Meg	79.00
Fujitsu Monte Carlo, Montego, Milan	*8Meg/16Meg/32Meg*	*79/159/299*
Gateway 2000 Colorbook 4/33	4Meg/16Meg	69/179
Gateway 2000 Nomad 425 DXL/SXL	4Meg/16Meg	159/759
Gateway 2000 486 Handbook or Liberty	4Meg/16Meg	59/169
Gateway 2000 Solo Series	4Meg/8Meg/16Meg	79/109/169
Gateway 2100 Solo Series	8Meg/16Meg	119/209
Hitachi C-Series	*8Meg/16Meg/32Meg*	*99/189/369*
Hitachi E-Series	*8Meg/16Meg/32Meg*	*89/169/299*
Hitachi M-Series	*8Meg/16Meg/32Meg*	*89/139/275*
HP Omnibook 300, 480, 425	2Meg/4Meg	83/129
HP Omnibook 530, 600	4Meg/8Meg/12Meg	69/89/149
HP Omnibook 800	8Meg/16Meg/32Meg	79/119/209
HP Omnibook 4000	4Meg/8Meg/16Meg	69/89/169
HP Omnibook 5000, 5500	8Meg/16Meg/32Meg	89/169/319
Leading Edge Aviva 2000	4Meg/16Meg	69/179
Lexmark SE10	4Meg/8Meg	79/119
Micron Transport Pentium (pairs)	8Meg/16Meg	89/189
Midwest Micro Elite or Soundbook	4Meg/8Meg/16Meg	79/119/199
Midwest Micro Elite or Soundbook Plus or Sndbk II, ItP	4Meg/8Meg/16Meg	79/119/199
Midwest Micro Elite or Soundbook CD	4Meg/8Meg/16Meg	79/119/199
NCR Safari 3180, 3181	4Meg/8Meg	79/119
NEC Ultralite Versa, E, V, MP	4 Meg/8Meg/16Meg/20Meg	64/99/199/299
NEC Versa S, Versa 2000C & 2000D, 500	4Meg/8Meg/16Meg	59/99/169
NEC Versa 4000, 4050/4080	4/8/16/32Meg	69/99/169/299
NEC Versa 6000	*8/16/32Meg*	*169/299/339*
Olivetti Echos P75-P1335 (pairs)	4Meg/8Meg/16Meg	89/129/219
Packard Bell Statesman	2Meg/8Meg	49/99
Panasonic CF-V21P, CF-580	4Meg/16Meg	69/169
Panasonic CF-V41	4Meg/8Meg/16Meg/32Meg	79/119/219/369
Sager Midern, all models	*4Meg/8Meg/16Meg/32Meg*	*69/99/169/399*
Samsung Sens 810	8Meg/16Meg	89/179
Sceptre Soundx, all models	*4Meg/8Meg/16Meg*	*89/129/239*
Sharp 3030, 3070	*8Meg/16Meg/32Meg*	*109/179/349*
Sharp 6781, 6881, 6785, 6700, 6800, 6741	2Meg/4Meg	79/129
Sharp 8150, 8650, 8660, 7700, 7760	4Meg/16Meg	69/189
Sharp 8700, 8800, 8900	4Meg/8Meg/16Meg	69/109/189
Sharp 3010, 3020, 3050, 3060	4Meg/8Meg/16Meg	69/109/189
Sharp 9000, 9030	8Meg/16Meg/32Meg	79/189/399
Sharp 9040, 9070 (pairs)	4Meg/8Meg/16Meg/32Meg	69/129/265/525
Sharp 9080 (pairs)	4Meg/8Meg/16Meg	59/99/189
Sharp PC 100T	8Meg/16Meg/32Meg	89/159/299
TI 4000, TI 4000E, TI 4000M	4Meg/16Meg	140/719
TI 5000, 5100, 5200, 5300	*8Meg/16Meg*	*99/199*
TI 6020, 6030	*8Meg/16Meg/32Meg*	*89/159/711*
TI Extensa, 450, 450T, 455, 455T	4Meg/8Meg/16Meg	59/99/169
TI Extensa, 550, 555, 560, 565, 570 (pairs)	*4Meg/8Meg/16Meg*	*59/99/169*
Tulip, Motion Line	*4Meg/8Meg/16Meg*	*39/65/129*
Twinhead, Altima, Compudyne, 486SX, OX, Tandy 4860	4Meg/16Meg	79/189
Twinhead Slimnote 5	4Meg/8Meg/16Meg	79/99/189
Ultra 486 TS38	4Meg/8Meg/16Meg	79/99/189
Winbook XP	16Meg/32Meg	79/229/469
Zenith Z-Note 425LN, LNC, LNP	4Meg	85.00
Zenith Z-Note MX	4Meg/8Meg/16Meg	69/99/179
Zenith Z-Star 4/33	2Meg/8Meg	49/99
Zenith Z-Star EX	*4Meg/8Meg/16Meg*	*59/109/169*

PC CARDS (PCMCIA) VERSION 2.0

MODEL	PRICE	MODEL	PRICE
S-RAM Cards 1MEG	$119	6X CD Rom	$269
S-RAM Cards 2MEG	199	8X CD Rom	399
28.8/14.4 Data/Fax Modem	129	*SCSI Type II*	*139*
14,400/14,400 Data/Fax Modem	59	*Audio Card*	*149*
Readwriter Card (ISA Slot)	149	Multimedia Combo, Sound/SCSI	499
Lan Ethernet (Coax), (10 Base T)	89	Type III 340 Mg Hard Drive	479
33.6 Comm. from Simple w/SimplJack	209	33.6 Data Combo Card 33.6/14.4 & Ethernet	399
33.6/14.4 Date/Fax Modem	157		

FLASH RAM (ATA) — Works with Digital Cameras Kodak DC-50 & More
4 Meg–139 8 Meg–199 16Meg–299 20Meg –379 NON ATA–CALL

HARD DISK DRIVES (EIDE)

SEAGATE		MAXTOR			WESTERN DIGITAL		
1.2 GIG	$207	1.0 GIG	7850 AV	$179	850MB	AC2850	$180
2.1 GIG	299	1.2 GIG	71260 AV	199	1.2 GIG	AC31200	229
		1.6 GIG		239	1.6 GIG	AC31600	259
		2.0 GIG		276	2.1 GIG	$339 2.5 GIG	$389

HARD DRIVES FOR LAPTOP & NOTEBOOK

IBM		NEC		UNIVERSAL FOR ALL NOTEBOOKS AND LAPTOPS	
THINKPAD 355, 360, 370,		Versa E, V, M, P – 1.3 GIG	$552		
750, 755 – 1.08 GIG	$465	2.1 GIG	799	1.08 GIG	$384
1.3 GIG	573	Versa 2000,4000 – 1.08 GIG	$465	1.3 GIG	530
2.1 GIG	819	1.3 GIG	599	2.1 GIG	768
THINKPAD 760 – 1.3 GIG	$599	TOSHIBA			
COMPAQ		4700/4800 – 1.08 GIG	$465		
LTE 5000,5100–1.08 GIG	$465	1.3 GIG	603		
1.3 GIG	552	Tecra T700 – 1.08 GIG	$465		
2.1 GIG	814	1.3 GIG	559		

310-539-0019
FAX: 310-539-5844

SECURITY WILL CALL WINDOW NOW OPEN

CALL TOLL FREE 1-800-433-3726 (US and Canada)

ESTAB. 1985

Prices & Availability Subject to Change Without Notice

Mon-Fri, 8:00 a.m. to 5:00 p.m. PST
Sat. 10:00 a.m. to 12:00 noon

Sales/Orders: latradesls@aol.com   Customer Service: latradecsd@aol.com   Price Inquiries: latradeinq@aol.com

www.megahaus.com

MEGAHAUS

1-800-786-1154

8:00AM - 8:00PM Mon-Fri 9:00AM - 3:00PM Sat CST

The Drive Authority since 1987

CD RECORDERS - BUILD YOUR OWN KIT!

It's as easy as 1,2,3,4,5!

(Please note: Software, controller, and media prices listed in this box are good only with the purchase of a CD Recorder drive. Please call for individual pricing.)

1 - CHOOSE YOUR DRIVE

2X4 Ricoh, 2MB 8uffer (RO1420C2M)	$349
2X4 JVC (JVC2010)	$385
2X6 Sony (CDU926S)	$395
4X4 Teac, tray loading (CDR50S)	$699
4X4 Yamaha (YCDR100)	$719

2 - CHOOSE INTERNAL OR EXTERNAL

If internal - go on to step 3. If external, add an external case (EXTCDCASE) $100, and the proper cable. We will even install the drive in the case for you.

3 - CHOOSE YOUR SOFTWARE

Incat Easy-CD -Supports Windows 3.1, 95, NT (INCATPC)	$50
Astarte Toast CD-ROM Pro -Supports Macintosh (TOAST)	$85
Elektroson Gear Multimedia for PC -Supports OS/2, Windows 3.1, 95, NT -Also supports Macintosh (GEAR)	$69
Creative Digital Research CDR HYCD for PC -Supports Windows 3.1, 95, NT -Creates hybrid CDs for PC/Mac/Unix (CDRHYWIN)	$359
Creative Digital Research CDR HYCD for Unix -For Unix workstations -Creates hybrid CDs for PC/Mac/Unix (CDRHYUNIX)	$1299

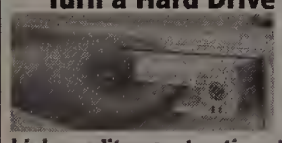
4 - CHOOSE YOUR SCSI CONTROLLER

16Bit	ISA	PIO	Adaptec	(A1505CDKIT)	$50
16Bit	ISA	Bus Master	Advansys	(ABP5140)	$95
32Bit	PCI	Bus Master	Advansys	(ABP940)	$125
32Bit	PCI	PIO	Adaptec	(A2920KIT)	$159
32Bit	PCI	Bus Master	Adaptec	(A2930KIT)	$189

5 - CHOOSE YOUR BLANK MEDIA

5 Pack (CDR74-5)	$40
20 Pack (CDR74-20)	$149
50 Pack (CDR74-50)	$359
100 Pack (CDR74-100)	$699

Turn a Hard Drive Into a Removable



Converts any 3 1/2" hard drive into a removable drive. Great for transportability, data interchange, or security needs. Extremely high quality construction. Metal cartridge and frame, cooling fan - perfect for new fast RPM drives. Unit has SCSI ID select on the cartridge. Qty discounts available.

	System	Extra Cartridge	Extra Frame
IDE	**$79**	**$39**	**$49**
SCSI	**$85**	**$40**	**$54**
WIDE SCSI	**$129**	**$64**	**$75**

Weather resistant case to store and transport cartridge $55

• OPTICALS •

All Optical Drive prices below include **1 FREE cartridge**.

230MB	Fujitsu IDE	$339
230MB	Smart Storage Solutions SCSI	$339
640MB	Smart Storage Solutions SCSI	$539
640MB	Fujitsu (230MB backwards compatible)	$555
650MB	Toray 4xCD and 640MB Optical comb.	$299
2.6Gig	Smart Storage Solutions	$1649
2.6Gig	Maxoptix	$1599
2.6Gig	Hewlett Packard	$1599
52Gig	Sony 20 slot Juke box w/ 2.6 Gig drive	$4599

• REMOVABLES •

540MB MCD Call about manufacturer's $50 rebate - good until 3/15/97
Compatible w/ SyQuest 270MB media. SCSI Int/Ext $249/$299

SyQuest
230MB Flyer compatible with EZ135MB disks
External SCSI or parallel with 1 free disk $299
Call about SyQuest $55 mail-in rebate - until 2/28/97!

100MB Zip
External SCSI with 1 disk/Ext Parallel with 1 disk $189/$189

1 GB Jaz
Internal SCSI with 1 disk/Ext SCSI with 1 disk $379/$469

Toray
PD Drive - 650M8 optical & 4X CD ROM in one unit!
Kit with 3 free disks & controller Int. $299 Ext. $399

Circle 147 on reader service card

• CD RECORDERS •

These COMPLETE KITS include drive, controller, software, and 1 recordable CD disk. Smart Storage Solutions kit includes 5 FREE recordable CD disks!

Smart Storage Solutions	2X Write 6X Read	$429
Hewlett Packard	2X Write 4X Read	$549
Ricoh	2X Write 4X Read	$445
Teac	4X Write 4X Read	$829
Smart Storage Solutions	4X Write 4X Read	$799
Yamaha	4X Write 4X Read	$759

• CD ROM DRIVES •

Brand	Spin	Model	Speed	Int	Ext
SCSI					
NEC	4X	CDR222	200ms	$99	$189
Plextor	6X	PX63CS	145ms	$269	$359
Philips	8X	PC80S	195ms	$205	$305
NEC	8X	CDR1410	145ms	$205	$295
Plextor	8X	PX83CS	115ms	$299	$389
Plextor	12X	PX12TS	105ms	$319	$409
Toshiba	12X	XM5701B	115ms	$199	$289
Plextor	12X	PX12CS	105ms	$349	$439
Toshiba	12/16X	XM3801B	99ms	$259	$349
ATAPI IDE				**Int**	**Int kit**
NEC	8X	CDR1400	140ms	$110	$140
Mitsumi	8X	CRMCFX800	150ms	$110	$140
Acer	10X	AC910A	150ms	$125	$155
Lite On	12X	LTN126A	155ms	$129	$159
Acer	12X	AC612A	125ms	$135	$165
Toshiba	12X	XM5702B	115ms	$159	$189
Teac	12X	CD512A	160ms	$145	$175
Cyber	12X	CYBER12X	150ms	$115	$145
Mitsumi	12X	CRMCFX12X	150ms	$139	$169
NEC	12/16X	CDR1600	100ms	$175	$205
IDE CD ROM CHANGER					
NEC	4X	CDR4X4	4 Disk 250ms	$99	
Panasonic	10X	SQTC510N	5 Disk 130ms	$249	
SCSI CD ROM CHANGERS					
Nakamichi	8X	MJ48S	4 Disk 150ms	$299	

• TAPE DRIVES •

QIC MINICARTRIDGE **(SAVE $10 with hard drive purchase)**
Includes DOS/Win backup software and 1 free tape.

800M8	Seagate	TST800R	$129
3.2Gig	Seagate	TST3200RFT	$199

PRINTER PORT MINICARTRIDGE
Includes DOS/Win backup software.

800MB	Seagate	TST800RPT	$159
3.2Gig	Seagate	TST3200RP	$249

IDE or SCSI TRAVAN **(SAVE $10 with hard drive purchase)**
Includes DOS/Win backup software and 1 free tape.

4-8GB	Seagate	TST8000(A)	$349

SCSI 4mm DAT

2GB	Hewlett Packard		C1534A1	$609
2-4GB	Seagate		C4324RP	$679
2-4GB	Hewlett Packard		C1536A1	$699
4-8GB	Sony		SDT5000AI	$809
4-8GB	Seagate		C4326NP (DDS2)	$859
4-8GB	**Sony**		**SDT7000AI**	**$909**
12-24GB	Sony	DDS3	SDT9000AI	$1399
12-24GB	HP	DDS3	C1554A1	$1599
24-48GB	HP	External 6 tape loader	C1553AX	$2299
32-64GB	Sony	TSL7000 8 tape autoloader		$2199
48-96GB	Seagate	C4586NP 12 tape autoloader		$2399

SCSI 8mm DAT

3.5-7GB	ExaByte	EXB8205XL	$1269
7-14GB	ExaByte	EXB8505XL	$1889
7-14GB	ExaByte	EXB8700LT	$1029
20-40GB	ExaByte	EXB8900	$4799
70-140GB	Exa8yte	EXB10H 10 tape autoloader	$5439

BACKUP SOFTWARE **(SAVE $10 with hard drive purchase)**

NovaStor's NovaBack CD contains software for DOS, Win 3.1, Win 95, OS/2, Warp, and Macintosh $79

NovaStor's NovaDisk CD contains software to backup to disk drives and removables $79

Seagate Arcada for Windows NT (call for netware version) workstation/single server/enterprise $239/499/869

TAPEDISK, allows DAT drive to be used as hard drive under DOS/Win 3.1, Win 95 $189

Call for the best prices in the industry on backup tapes!

• IDE HARD DRIVES •

IDE	Speed	RPM	Brand	Model	Wty	Price
631M8	14ms	3600	Seagate	ST3630A	3	$145
1200MB	10ms	5400	Fujitsu	M1636T	3	$189
1200M8	14ms	4103	JTS	JTS1200	3	$179
1275M8	12ms	4500	Seagate	ST31276A	3	$195
1280M8	11ms	4500	Quantum	TM31280A	3	$195
1281MB	11ms	5200	Western Digital	WDAC21200	3	$199
1624M8	10ms	5200	Western Digital	WDAC21600	3	$219
1670M8	11ms	4480	Maxtor	M81750A	3	$215
1700MB	10ms	5400	Fujitsu	M1623T	3	$209
1700MB	12ms	4500	Seagate	ST31720A	3	$215
2000M8	14ms	4103	JTS	JTS2000	3	$219
2004M8	11ms	4480	Maxtor	M72004A	3	$255
2100MB	11ms	5200	Western Digital	WDAC22100	3	$239
2100MB	9ms	5400	Fujitsu	M1624T	3	$235
2132M8	12.5ms	4500	Seagate	ST32132A	3	$247
2168MB	10.5ms	4500	Quantum	TM32160A	3	$249
2500MB	**9ms**	**5400**	**Fujitsu**	**M1638T**	**3**	**$249**
2550M8	15ms	3600	Quantum	8F2500A	3	$229
2550MB	10.5ms	4500	Quantum	TM32550A	3	$262
2559MB	11ms	5200	Western Digital	WDAC32500	3	$275
2560M8	11ms	5400	Seagate	ST52520A	3	$275
2700M8	12ms	4480	Maxtor	M72700A	3	$269
3166MB	12ms	5200	Western Digital	WDAC33100	3	$299
3254MB	10.5ms	4500	Quantum	TM33200A	3	$292
3500M8	12ms	4480	Maxtor	M83500A	3	$365
3840MB	10.5ms	4500	Quantum	TM33840A	3	$333
4000MB	12ms	5200	Western Digital	WDAC34000	3	$389

• SCSI HARD DRIVES •

SCSI	Speed	RPM	Brand	Model	Wty	Int	Ext
1050MB	9ms	5400	Seagate	ST31055N	3	$339	$409
1280MB	12ms	4500	Quantum	TM31280S	3	$279	$349
2110MB	10.5ms	4500	Quantum	TM32110S	3	$329	$399
2147MB	9ms	5400	Micropolis	MC4421	5	$369	$439
2150MB	9ms	5400	Seagate	ST32155N	5	$475	$545
2150MB	8ms	7200	Seagate	ST32171N	5	$699	$769
3254MB	10.5ms	4500	Quantum	TM33200S	3	$379	$449
4350MB	8ms	7200	Seagate	ST34371N	5	$1089	$1159
4400MB	8ms	7200	Fujitsu	M2954S	5	$819	$889
4550MB	8ms	7200	Quantum	XP34550S	5	$939	$1009
4550MB	7.9ms	7200	Micropolis	MC4345	5	$959	$1029
4550MB	**7.5ms**	**10,000**	**Seagate**	**ST34501N**	**5**	**$1669**	**$1739**
4550MB	7.9ms	7200	Micropolis	MC4345AV	5	$1129	$1199
9091MB	8.5ms	7200	Micropolis	MC3391	5	$1689	$1759
9091MB	8.5ms	7200	Micropolis	MC3391AV	5	$1899	$1969
9100MB	9ms	7200	Seagate	ST19171N	5	$2099	$2169
9100MB	8ms	7200	Quantum	XP39100S	5	$1539	$1619
9100MB	10ms	7200	Fujitsu	M2949S	5	$1549	$1629
9100MB	**8ms**	**10,000**	**Seagate**	**ST19101N**	**5**	**$3569**	**$3639**
23.3GB	**13ms**	**5400**	**Seagate**	**ST4234501N**	**5**	**$4029**	**$4079**
WIDE SCSI							
1050MB	9ms	5400	Seagate	ST31055W	5	$389	$529
2150MB	9ms	5400	Seagate	ST32155W	5	$519	$659
2150MB	8ms	7200	Seagate	ST32171W	5	$779	$919
4294MB	8ms	7200	Micropolis	MC3243W	5	$899	$1039
4294MB	8ms	7200	Micropolis	MC3243WAV	5	$999	$1139
4350MB	8ms	7200	Seagate	ST34371W	5	$1189	$1329
4400MB	8ms	7200	Fujitsu	M2954W	5	$869	$1009
4550MB	7.9ms	7200	Micropolis	MC4345W	5	$999	$1139
4550MB	7.9ms	7200	Micropolis	MC4345WAV	5	$1159	$1299
4550MB	**7.5ms**	**10,000**	**Seagate**	**ST34501W**	**5**	**$1699**	**$1839**
4550MB	8ms	7200	Quantum	XP34550W	5	$979	$1119
9091MB	8.5ms	7200	Micropolis	MC3391W	5	$1739	$1879
9091MB	8.5ms	7200	Micropolis	MC3391WAV	5	$1939	$2079
9100MB	8ms	7200	Quantum	XP39100W	5	$1599	$1739
9100MB	8ms	7200	Fujitsu	M2949W	5	$1579	$1719
9100MB	8ms	7200	Seagate	ST19171W	5	$2149	$2289
9100MB	**8ms**	**10,000**	**Seagate**	**ST19101W**	**5**	**$3599**	**$3739**
23.3GB	**13ms**	**5400**	**Seagate**	**ST423451W**	**5**	**$4079**	**$4219**

MegaHaus
2201 Pine Drive, Dickinson, Texas 77539
(281)534-3919 FAX (281)534-6580

Prices & specifications subject to change without notice. Shipping charges are nonrefundable. Returns must be in new condition and in original packaging. Defaced items may not be returnable. No refunds on software or special orders (items not listed in ad.) All refunds subject to 15% restocking fee. All trademarks are registered trademarks of their respective companies. All products covered only by manufacturer's warranty. Personal checks held for clearance. We reserve the right to refuse any sale for any reason. Bundle price good only if sold at ad price. ©1997 MegaHaus Inc.

PC WORLD MARKETPLACE

For Advertising Sales
(203) 857-5101
(203) 857-5102

New Product Introductory Offer

"With NetReach on our server, the company's idle PCs became a valuable asset"

Create Network Screen Savers

NetReach™ motivates and communicates with fresh and exciting network screen savers

- Promote Corporate Culture
- Improve Quality Consciousness
- Energize Sales Promotions
- Build HR Issues Awareness
- Reinforce Training

For FREE information call: www.softreach.com
SoftReach™ (800) 331-1030

CIRCLE 512 ON READER SERVICE CARD

KEEP YOUR PCs UP AND RUNNING WITH THE 100% ACCURATE FIX

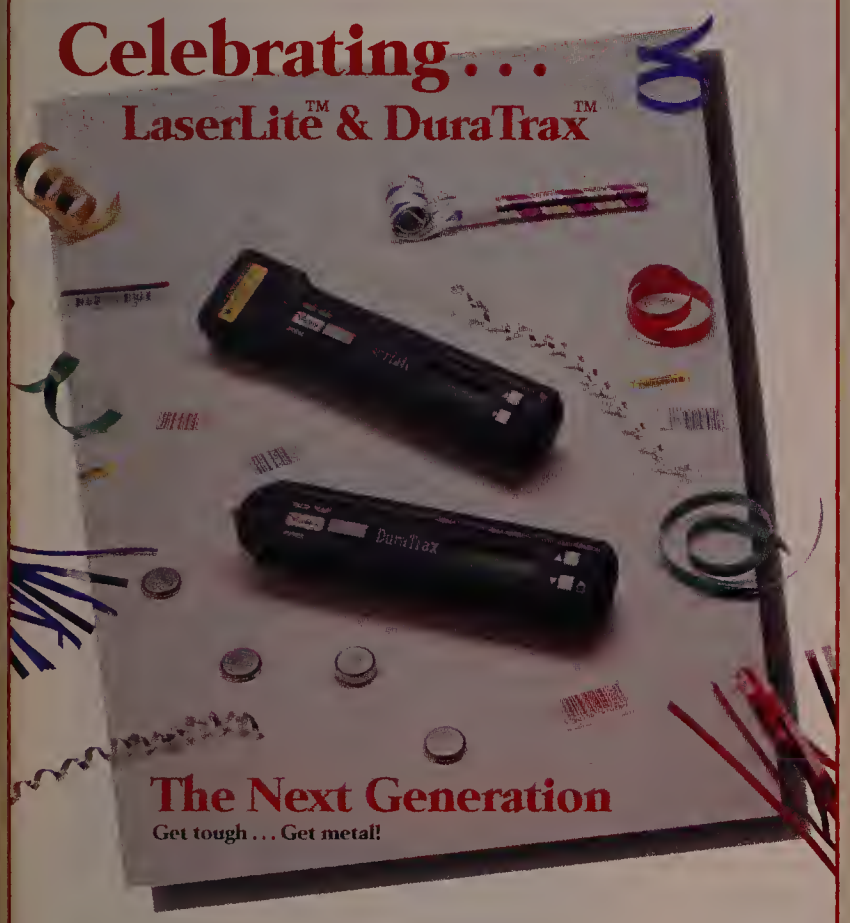
Micro-Scope is a universal PC diagnostic that runs a proprietary O/S which eliminates DOS limitations and inaccuracies. Ver. 6.16 adds 25 enhancements and includes: IDE low-level format, accurate IRQ conflict display, cache memory test, 64 meg video memory test, data recovery capabilities, virus capabilities and super fast hard drive testing.

Post-Probe is a universal P.O.S.T. reader card for the non-bootable PC. Post-Probe includes: MCA adapter, tri-state logic probe, 13 LED pre-post test, 7 segment post code display, and a manual with a full explanation of the manufacturer post codes down to the device or chip failure.

Micro 2000
1100 E. Broadway #301, Glendale, CA 91205
TEL: (800) 864-8008
FAX: (818) 547-0397
www.micro2000.com

CIRCLE 457 ON READER SERVICE CARD

Celebrating . . .
LaserLite™ & DuraTrax™



The Next Generation
Get tough . . . Get metal!

Join the party as we celebrate two hot new products!
LaserLite—the smallest portable laser bar code reader on the market!
And DuraTrax—the first portable reader to fully integrate Touch Memory® and bar code technology.
Call for your free information kit!

Videx

1105 N.E. Circle Blvd., Corvallis, OR 97330
541-758-0521 • Fax 541-752-5285 • http://www.videx.com GC0731

CIRCLE 480 ON READER SERVICE CARD

NO MORE pre-printed checks!

Save time and money printing your own checks with mips VersaCheck™!

Revolutionary mips VersaCheck™ is the inexpensive software that not only lets you print your own completely valid checks from scratch, but automatically keeps your account balances too! mips VersaCheck installs in MS Word for Windows and lets you create checks in minutes. Include addresses, logos, even your signature, all password protected. **mips VersaCheck even prints the MICR account number required by all banks for processing.** And, you can make changes to your checks at any time, instantly!

- ✔ Save 50-80% over pre-printed checks!
- ✔ Prints bank drafts and deposit slips
- ✔ Manage an unlimited number of password-protected accounts
- ✔ Compatible with inkjets and laser printers
- ✔ Compatible with Quicken, QuickBooks, PeachTree and more

HEWLETT® PACKARD **Look for the HP $19.95 Value Coupon inside packages at participating stores and mail order catalogs!**

mipsVersaCheck™ SRP $49.95

mips Dataline America, Inc. **To order, call 800-898-8560**
Tel: 619-679-4070 Fax: 619-679-4073
13240 Evening Creek Drive, Suite 311 · San Diego, CA 92128

Also available through:

EGGHEAD	COMPUSA	Tiger Soft	PC Mall	MicroWarehouse
800-EGGHEAD	800-COMPUSA	800-888-4437	800-555-MALL	800-367-7080

CIRCLE 517 ON READER SERVICE CARD

Retail Accounting Solution!

PCW 3/97

MicroBiz AUTOMATE YOUR BUSINESS™

The worlds best selling Point-of-Sale solution that gives you more money, more control and more flexibility.

See for yourself how effectively MicroBiz software can manage your retail business

- ✓ Accurate Inventory Control
- ✓ Defined Customer Tracking
- ✓ Complete Invoicing
- ✓ xBase File Structure
- ✓ Multiple Language Support
- ✓ Create Mailing Lists
- ✓ Detailed Receipt Generation
- ✓ Hardware Solutions Too
- ✓ Includes Report Builder Module

Special Versions For:

- ✓ Auto Repair
- ✓ Dry Cleaning
- ✓ Video Tape Rental
- ✓ Liquor Store
- ✓ Hair Salon
- ✓ All Retail & Service Businesses

FROM $695.00

MICROBIZ "Easiest to Use" ...Computer Reseller News November 7, 1994 SOFTWARE

MicroBiz offers the easiest to use Point-of-Sale software solutions for retail and service businesses. Over 100,000 Businesses have automated with our software. Our software is powerful, flexible and uses industry standard xbase files, so you can create your own reports. Our data can be merged with Excel, Word, and other industry standard products. Call for a demonstration copy of our software or download it from the web. Single or Multi-user or multi-store solutions.

Call for our ***FREE*** catalog... **800-637-8268**

Resellers Welcome!
Call 800-SELL-POS

777 Corporate Drive ◆ Mahwah, NJ 07430
Phone: 201-512-0900 FAX: 201-512-1919
Visit our Home Page at: www.microbiz.com

CIRCLE 403 ON READER SERVICE CARD

COMPUTER CHECKS

BUY DESIGNER DIRECT FOR LOWEST PRICES!

Laser/Inkjet

Continuous Checks and Check Savers Also Available.

As Low as $29.95

CALL: 1-800-239-4087

FAX ORDERS: 1-800-774-1118
(PLEASE CALL FOR A FAX ORDER FORM)
MC, VISA & AMERICAN EXPRESS ACCEPTED

Internet: http://www.hotnew.com/checks/
E-Mail: info@checks.hotnew.com

- ✓ QUICKEN
- ✓ SIMPLY MONEY
- ✓ MICROSOFT MONEY
- ✓ MANY MORE

Laser and Continuous Feed Checks available in:

- Business Size
- Business Size with Voucher
- Wallet Size

Available in Quantities of 250, 500, 1000 and 2000.
Choose From 4 Stylish Colors!

Classic Blue | Tan | Classic Green | Prestige

Designer CHECKS
P.O. Box 13387 • Birmingham • AL 35202

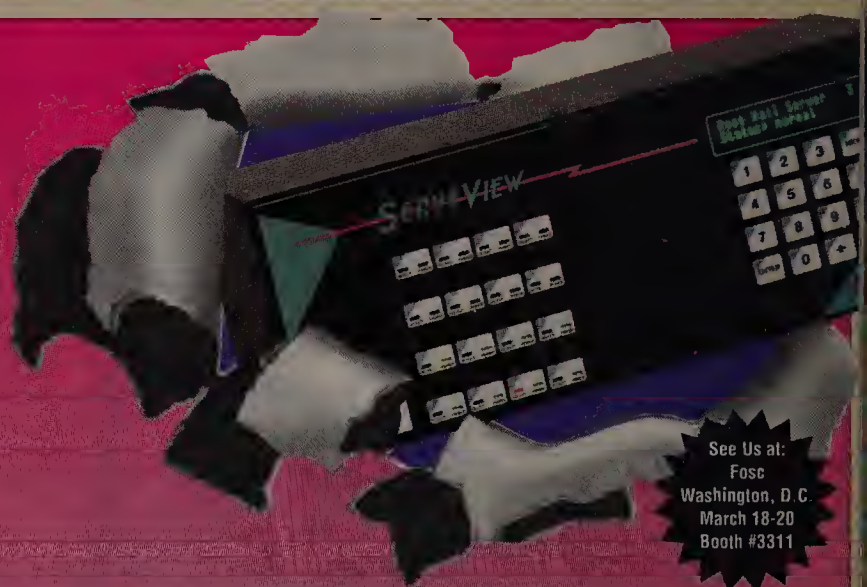
PO8P04D6 • P.C. WORLD

CIRCLE 474 ON READER SERVICE CARD

Breakthrough

In Keyboard Monitor Switches

Multi Platform & On-Screen Display



See Us at:
Fosc
Washington, D.C.
March 18-20
Booth #3311

BREAKTHROUGH the clutter of multiple keyboards, monitors, and mice with this latest **INNOVATION** from Rose. This switch has every feature you asked for:

Switches several servers or computers to a single monitor, keyboard, and mouse

Supports any mix of PC, Apple, Sun, RS 6000, HP 700 series, DEC Alpha, SGI, or other computers from any keyboard or mouse

Front panel has keypad for easy selection of computers and configuration

Front panel display shows computers name and other information

Command to switch can come from your keyboard, front panel, or RS232 port

Simple to use keystrokes switch computers for fast and easy control

Built in daisy-chaining to support up to 256 computers

Flash memory for future upgrade of features

Easy to use **OverView™** system gives control and status with on-screen graphics

Many other features!

ROSE ELECTRONICS INVENTED the first keyboard-monitor switch. We have an extensive line of keyboard and video control products for any application.

CALL TODAY FOR FREE CATALOG:

- *Keyboard/Video Control*
- *Print Servers*
- *Data Switches*

800-333-9343

VISIT OUR WEB SITE AT WWW.ROSEL.COM

ROSE ELECTRONICS

10707 STANCLIFF ROAD HOUSTON, TEXAS 77099 TEL 281-933-7673 FAX 281-933-0044

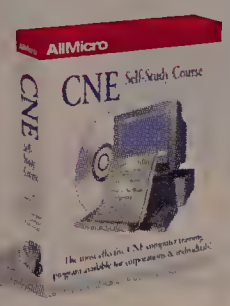
CIRCLE 414 ON READER SERVICE CARD

BECOME A CNE ...FAST!

THE FIRST CNE COMPUTER BASED TRAINING PROGRAM IS HERE...

The first *100%* Computer Based Training (CBT) program to fully prepare you for Novell's CNE exams. Its innovative design provides fast, effective and convenient training to anyone wishing to become a Certified NetWare Engineer, even when hampered by a busy schedule. Our CNE CBT allows you to learn and practice *everything* you'll need for full NetWare certification.

- All on one CD
- Interactive NetWare simulation for hands-on exercises
- Study at your own pace
- Hundreds of practice questions
- Priced below competitive products
- Everything you need to prepare for Novell's tests!



Added Bonus! The AllMicro CNE Self-Study Course comes with the required Micro House Technical Library™.

NOTE: As of 6/30/96 current CNE's will lose their certification unless they pass Novell's new 3.1x 4.1 update test. We have the course! ***CALL TODAY!!***

DON'T PUT YOUR CAREER ON HOLD ANY LONGER! GET THE ALLMICRO CNE SELF-STUDY COURSE AND GET CERTIFIED...FAST!

COURSE MODULES INCLUDE:

- Administration v3.1x
- Advanced Administration v3.1x
- 3.1x Installation & Configuration (#802)
- Service & Support for NetWare (#801)
- TCP/IPTransport for NetWare
- Networking Technologies
- NetWare 3.1x to 4.1 Update.

**NetWare 4.1 course also available*

For more information about our limited time discount pricing CALL:

1-800-653-4933

INTERNATIONAL: (813) 539-7283
FAX (813) 531-0200 PC

ForeFront/AllMicro, Inc.
18820 U.S. HWY. 19N., #215, CLEARWATER, FL 34624

CIRCLE 477 ON READER SERVICE CARD

BEAUTIFUL COMPUTER FURNITURE

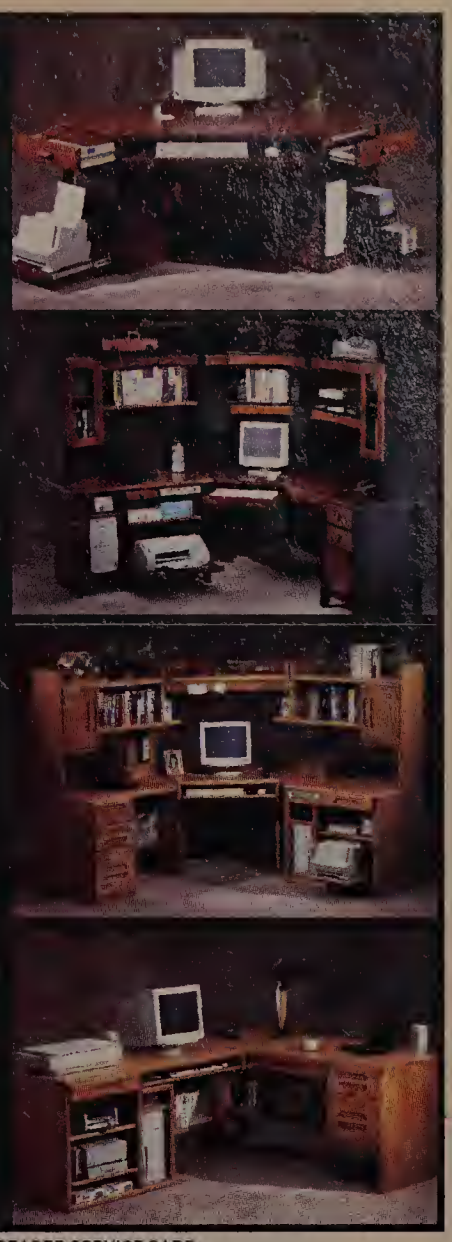
- Delivered & set up in your home or office.
- Over 25 desks delivered from $419.

Call Today For Your Free Catalog!

1-904-565-1163

www.cf-direct.com

Please refer to ad code: PCW0397



COMPUTER FURNITURE DIRECT

CIRCLE 423 ON READER SERVICE CARD

Student - Teacher & School Discounts!

Borland C++ 5.0 $149

AutoCad LT 3.0 $329

Fractal Painter 4.0 $209

LATEST VERSIONS & FULL PACKAGES

18 Perfect People	$249	Expression 1.0	$199	OmniPage Pro 7.0	$349
Agfa SnapScan	$339	FastTrack Schedule 4.0b	$129	Page Scan Color Pro	$329
Animator Studio 1.1	$169	FileMaker Pro 3.0	$129	PaperPort Vx	$289
ArchICad 5.0 Student	$129	Final Draft 4.0	$125	Printshop Deluxe II	$55
Astound 4.0	$99	Form Z 2.8.2	CALL	ProComm Plus 4.0	$99
Authorware 3.5.1	$649	FreeHand 7.0	$169	SPSS 6.1 Student	$99
Cakewalk Professional 5.0	$179	FutureSplash Animator	$169	SigmaPlot 3.0	$349
Canvas 5.0	$179	Grolier 1997 Mpc Encycl	$59	SmartSuite 96	$99
ChemOffice Pro3.5Student	$299	HomePage 2.0	$69	SoftF/X Pro	$249
Coda Finale 3.7	$249	Infini-D 3.5	$249	Sound Forge 4.0	$299
ColorDrive 1.5	$99	Inspiration 4.0	$89	Spanish Power Translator 2.0	$99
Conversions+ 3.5	$95	IntraBuilder Pro 1.0	$399	Studyware Statistic	$35
Corel Cadd 1.0	$149	Jamba for Windows 95	$195	TriSpectives Technical 2.0	$149
Corel Click & Create	$149	KPT Power Photos 1,2,3 or 4	$85	TrueSpace 2.0	$299
Corel Office Pro 7.0	$149	Kai's Power Tools 3.0	$85	Turbo C++ 3.0	$59
Corel Web.Graphics Suite.	$99	KaleidaGraph 3.0	$89	Turbo Pascal 1.5	$75
Delphi Developer 2	$149	LightWave 3D 5.0	CALL	Umax Vista-S6E Scanner	$315
DeltaGraph Pro 4.0	$89	Lotus 1-2-3 5.0	$69	Visio Technical 4.1	$199
DesignCad Office 8.0	$449	MYOB 7.0	$49	Wacom Art Z II 12x12	$399
Director 5.0.1	$299	Mathcad 6.0+	$149	Wacom Art Z II 6x8	$285
Director Studio 2.0	$899	Mathematica 3.0 Student	$169	Wacom ArtPad II w/Dabbler...	$149
Director ToolBox Pro	$99	MediaPaint 1.1	$199	Walkthrough Pro 2.6	$229
DrawingSlate II 12x12	$209	Micro Grade	$69	WebSights Deluxe	$69
Encore 4.1	$249	MinICad 6.0	$319	Win Academy Tutorial Videos	$35
EndNote Plus 2.1	$165	OS/2 Warp 4.0	$99	WordPerfect Suite 7.0	$79

Black Box 2.0b $69

KPT Bryce 2.0 $119

Corel Draw 7.0 $169

Free America Online Starter Kit & 15 FREE Online hours with EVERY order!

*SAME DAY SHIPPING ON MOST ITEMS.
*SCHOOL PURCHASE ORDERS WELCOME.
*NO SURCHARGE ON CREDIT CARDS.
*IBM & MAC PRODUCTS AVAILABLE.
*ADOBE, SYMANTEC & MICROSOFT PRODUCTS AVAILABLE TO QUALIFIED STUDENTS, TEACHERS AND SCHOOLS.

PHONE (800) 289-3275

**Prices and Availability Subject to Change
**Free AOL Starter Kit While Supplies Last

CALL FOR FREE CATALOG!! (800)289-3275

INCLUDES COMPLETE PRICE LIST & FREE PRODUCT LITERATURE

WE WILL BEAT ANY ADVERTISED PRICE !

The SOFTWARE Source

THE SOFTWARE SOURCE CO, INC.
1750 Brielle Ave, Unit A-2, Ocean NJ 07712
Phone (908) 695-2100 Fax (908) 695-9371

VISA MasterCard DISCOVER

CIRCLE 473 ON READER SERVICE CARD

IDT PROUDLY UNVEILS IT'S NEW enhanced INTERNET SERVICE

InternetPlus™

24/7 TECH SUPPORT | FREE NET2PHONE™ | FREE INDIVIDUAL™ | FREE 2AM™ GAMES

for only $19.95

IDT's InternetPlus is for people who are ready to use the Net for all it's worth without having to stop, slow down and get frisked by some online service. **If you're ready for InternetPlus call us any time of the day or night.**

(800) 374-9438

ENJOY A FREE MONTH OF UNLIMITED LONG DISTANCE AND INTERNATIONAL PHONE CALLS!

Get combined InternetPlus and IDT's deep-discount long distance phone service. You'll save a bundle compared to AT&T, MCI or Sprint. PLUS you'll get a rebate check for a full month of calls. (There's no limit). For complete details speak to an IDT customer service associate.

INTERNET PLUS

6097 ©1996 IDT CORP. IDT IS A TRADEMARK OF IDT CORP. ALL OTHER TRADEMARKS ARE THE PROPERTY OF THEIR RESPECTIVE OWNERS

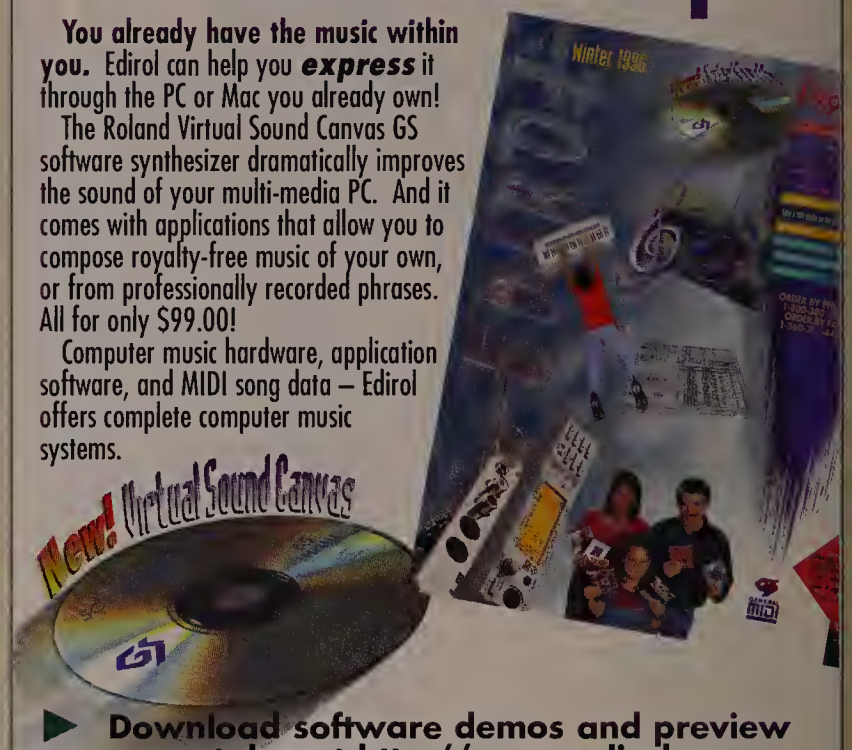
CIRCLE 424 ON READER SERVICE CARD

Add COLORFUL Music To Your Desktop

You already have the music within you. Edirol can help you ***express*** it through the PC or Mac you already own!

The Roland Virtual Sound Canvas GS software synthesizer dramatically improves the sound of your multi-media PC. And it comes with applications that allow you to compose royalty-free music of your own, or from professionally recorded phrases. All for only $99.00!

Computer music hardware, application software, and MIDI song data – Edirol offers complete computer music systems.



- **Download software demos and preview our catalog at http://www.edirol.com**
- **Call 1-800-380-2580 to request your free Edirol computer music buyer's guide**

EDIROL

Member of the Roland Group

808 Harrison Ave.
P.O. Box 4919
Blaine, WA 98231-4919

CIRCLE 489 ON READER SERVICE CARD

Custom Ultra SCSI Tools

If you want Ultra SCSI Performance use our Teflon Cables & Active Terminators

SCSIVue™ Active Terminator

From: $59

Optional Remote Display

Benefits:
- Improves SCSI Bus Performance
- Less Errors; More Reliable Data Transfer
- Diagnoses Problems • Analyzes Signal Quality

Features:
- Active Regulation • Supports 68 Pin, 50 Pin
- Status Indicators • Gold Contacts

Ultra SCSI 40MB/s Std. & Wide Compatible

Gold Diagnostic Cables

From: $39

Benefits:
- No Loss Of Important Data
- Faster Performance
- Test Cable Integrity

Features:
- Diagnostic Indicators • Large Ferrite Filters
- Triple Shielding (Unique Cable Design)
- Double Gold 20u" Plated Connectors
- Extra Heavy 26 Gauge Wire, 50 & 68 Pin

ULTRA SCSI Cables 40MB/s! Over 60 Cable Styles In Stock

Teflon Custom Internal Cables

Benefits:
- Less Errors, Ultimate Performance
- Silver Wire Improves Signal Quality

Features:
- Perfect 90 Ohm Impedance Match
- Triple Pronged Connector With Gold contacts

From: $39

Custom Internal Cables in 1 DAY!

SCSI 2+3 COMPATIBLE Active Digital Switch

Benefits:
- Share SCSI Devices Between 2 Computers
- Attach up to 14 Devices to 1 Computer

Features:
- 2-1 Active Digital Switch/Repeater
- Regenerates SCSI Signal for Long Runs

Catalog Online @ www.scsipro.com

Granite D•I•G•I•T•A•L *The SCSI Solution Company*

3101 Whipple Rd. • Union City, Ca. 94587 • Ph: 510-471-6442 • Fax 510-471-6267

CIRCLE 454 ON READER SERVICE CARD

STOP COMPUTER THEFT!

IN THE OFFICE — ON THE ROAD

- ***Secure computer or notebook to desk, table, etc.***
- ***Protect data***
- ***Lifetime warranty***

Kablit™ II - List $34.95

Fixed Location

Kablit™ T-Lock - List $39.95

Any Location

Quick And Easy To Install Available For Macintosh Too

Padlock Security Provided by Master® Lock

TOUGH UNDER FIRE

Secure-It

Order now — Call 800-451-7592...

18 Maple Court, East Longmeadow, MA 01028, USA phone 413-525-7039
EMAIL: secure-it@owls.com INTERNET: http://owls.com/secure-it/index.html

The particular Master® Lock Trademarks used are trademarks of the Master® Lock Company and are used by Secure-It, Inc. under license.

CIRCLE 433 ON READER SERVICE CARD

Look Bright Overnight!

When it comes to your projection system needs, Boxlight Delivers!

- Over 50 models in stock
- Knowledgeable sales people
- Projectors from $2,999
- Panels starting at $1,499
- FREE Lifetime technical support
- 30-day money back guarantee
- 11 years of experience and service

"My Boxlight Representative answered each of my questions with thorough knowledge, kindness and patience. Because of the efforts and attitudes of Boxlight sales representatives, not to mention top quality products, I've become a customer for life!" –John Matusin, President of Business Insights Group

http://www.boxlight.com

BOXLIGHT™ CORPORATION

PRESENTING A BETTER WAY ™

REVOLUTION 3600

800x600 SVGA ***500 ANSI Lumens***
Power Zoom Focus ***Wireless PC Mouse***
Video Capable ***PC and Mac Compatible***

Revolution 3000

Boxlight 4801

Boxlight 3080+

Call Today and We Will Have You Looking Good Tomorrow

Looking for a quick way to improve your image? Our new Revolution 3600 projector is the lightest, brightest high-resolution projector you can get. We can even set you up with a rental or arrange a low-cost lease. Is 10am tomorrow soon enough?

NUMBER ONE IN RENTALS 800•736•6954

CALL 1-800-762-5757 TODAY!

Government: (800) 497 4009 **Resellers:** (800) 736 6956
International: (360) 779 7901 **Rental:** (800) 736 6954
Fax: (360) 779 3299 **Education:** (800) 689 6676

Monday - Friday, 6am - 5pm PST. Purchase orders accepted.
Prices subject to change. Quantities may be limited to stock on hand.

*30-day money back guarantee does not apply to Resellers.

CIRCLE 511 ON READER SERVICE CARD

SVGA Splitters

HRT
HALL RESEARCH TECHNOLOGIES
800-959-6439
714-641-6607 fax: -6698
1506 Brookhollow Dr.,
Santa Ana, CA 92705

Celebrating Our 12th year!

Toll-Free Support
One Year Warranty
Quantity Discounts

- Display your PC's screen on many monitors simultaneously
- Perfect for demos, training and remote monitoring
- Proven wideband amplifier assures bright and crisp image - GUARANTEED!
- Automatically access one PC from two keyboards with ease
- Quality monitor and keyboard extension cables available to 500 feet
- Exclusive video switches, multiplexers and other unique products

CIRCLE 459 ON READER SERVICE CARD

LOWEST PRICES ANYWHERE!

TOSHIBA

Satellite 200CDS	$1949
Satellite Pro 420CDT	$2875
Portege 650CT	$3965
Tecra 500CDT	$3799
Tecra 730CDT	In Stock

Notebook Drives

1.3GB Tecra 720	$515
2.1GB IBM 360, 755	$735

Monitors

KDS VSX-7 17"	$549
ViewSonic V773 17"	$579
Sony 200SX 17"	$685
NEC M700 17"	$749

Printers

Epson Stylus 500 Color	$269
Epson Stylus Pro Color	$365
HP LaserJet 6P	$735
HP LaserJet 5	$1275

Simple TECHNOLOGY

UPGRADE YOUR MEMORY!

8MB	Toshiba 420,720	$95
16MB	Toshiba 420,720	$165
32MB	Toshiba 420,720	$299
16MB	Tecra 500, 510	$129
8MB	IBM 760E, 365X, 560	$110
16MB	IBM 760E, 365X, 560	$155
16MB	Compaq 4100	$165
32MB	Compaq 4100	$289

Over 20,000 Products In Stock Ready to Ship! **CALL FOR FREE CATALOG!** Source Code 830397

Sales/Inquiries 714-707-3082
24 Hour Fax 714-768-7307
All price subject to change without notice.

ORDER 6AM - 6PM PST • MON - FRI
1-800-258-2721
Visit Our Web Site @ http://www.club-pc.com

ClubPC®
60 Parker, Irvine, CA 92618

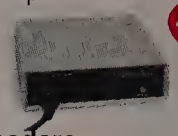
CIRCLE 502 ON READER SERVICE CARD

Buy American

VOLUME PRICING AVAILABLE

American Microsystems has been manufacturing the highest quality bar code equipment for over **13 years.** The use of **superior components,** precise production and design processes, and very thorough **quality control** procedures separates our products from the competition. We back these products with a full **30-day money-back guarantee.** Best of all, we cover your purchase with **lifetime toll-free technical support,** staffed by knowledgeable and friendly technicians, to answer your most difficult questions. Plus, all orders placed before 3:00 pm CST are **shipped the same day!** Call today to receive a **free catalog!**

LabelWorks® $295
for Windows is a full-featured label design software program by American Microsystems. Scaleable fonts, text rotation, colors and a full range of bar code capabilities.



Highest First Read Rates!

Decoders $219 and up
Direct from American Microsystems! Simple installation, auto-discriminates, fast and very accurate. Accepts wand, slot, mag stripe, ccd and laser input.

CCDs and Lasers $249 and up
All undergo extensive testing to ensure a trouble free purchase. Extremely fast and accurate scan rates. Available in decoded or undecoded models.

AMERICAN MICROSYSTEMS, LTD
800 648 4452 x 305
fax 817 685 6232 • www.amltd.com

BASON HARD DRIVE WAREHOUSE 800-238-4453

Smaller than 1.0GB

100MB Conner CP3100	SCSI	$45
540MB Quantum 540S	SCSI	$125
540MB Seagate 3541A	IDE	$125
540MB Seagate 5660N	SCSI	$125
640MB Quantum 640AT	IDE	$135
640MB Seagate 3630A	IDE	$135
640MB WD AC2635	IDE	$135
840MB Quantum 840A	IDE	$155
840MB Seagate 3850A	IDE	$149
840MB WD 2B50	IDE	$155

1.0 GB

Conner 3107L	SCSI	$249
IBM DFMS	SCSI	$259
Quantum 31080S	SCSI	$259
Seagate 310B1A	IDE	$169
Seagate 510B0A	IDE	$179
Seagate 51080N	SCSI	$249

1.2 GB

Maxtor 71336A	IDE	$199
Quantum 31280A	IDE	$215
Quantum 31280S	SCSI	$279
Seagate 51270A	IDE	$189
Seagate 31276A	IDE	$199
WD 21200A	IDE	$209

1.6 GB

Maxtor 71626A	IDE	$219
Seagate 31621A	IDE	$205
WD 21600A	IDE	$219

1.7 GB

Quantum 31700	IDE	$219

2.0 GB

Conner 2105S	SCSI	$499
Conner 2107S	SCSI	$529
HP 3325A	SCSI	$369
HP 3728A	SCSI	$369
IBM DORS	SCSI	$339
IBM DFMS	SCSI	$339
Micropolis 4221	SCSI	$429
Micropolis 4421AV	SCSI	$409
Quantum 32150S	SCSI	$499
Quantum 32110S	SCSI	$399
Quantum 32170S	SCSI	$409
Quantum 32110T	IDE	$249
Seagate 32132A	IDE	$249
Seagate 32109N	Ultra	$479
Seagate 32430N	SCSI	$499

2.0 GB

Seagate 32151N	SCSI	$499
Seagate 32550N	SCSI	$629
Seagate 32155N	Ultra	$479
Seagate 32171N	SCSI	$659
WD 32100A	IDE	$259

2.5 GB

Quantum 32550A	IDE	$289
Seagate 52520A	IDE	$289
WD AC32500	IDE	$269

3.0 GB

Quantum 33200S	SCSI	$449
Seagate 43400N	SCSI	$349
WD 33100	IDE	$329

4.0 GB

Conner 4207S	SCSI	$899
Fujitsu 2954S	SCSI	$759
IBM DCHS	SCSI	$799
Micropolis 3243	SCSI	$789
Micropolis 3243AV	SCSI	$959
Quantum GP34301	SCSI	$799
Quantum 34300	SCSI	$829
Seagate 15230N	SCSI	$839
Seagate 15150N	SCSI	$989
Seagate 34371N	SCSI	$1029
Seagate 14209N	SCSI	$959

9.0 GB

Fujitsu 2949S	SCSI	$1749
Micropolis 1991	SCSI	$1649
Micropolis 1991AV	SCSI	$1749
Seagate 410B00N	SCSI	$1649
Seagate 19171N	SCSI	$2049

Controllers

Adaptec	
1542CF	$165
2940 PCI U-Wide	$239
2940 PCI Ultra	$189
Sunjak (w/kit)	
SJ-1500 EIDE	$25
SJ-7048S VESA	$139
SJ-3000 PCI	$99
SJ-3000W Wide	$139

Multimedia

CD-ROM Drive		
4x	IDE / SCSI	$69 / $139
6x	IDE / SCSI	$79 / $259

Tape Drives

QIC		
3.2GB	IOMega	$159
4.0GB	Conner 4000I	$349
8.0GB	Colorado T4000S	$399
DAT		
2.0GB	Conner MS2000Ext	$599
2.0GB	Conner 4320	$499
2.0GB	Conner CTD2004	$499
2.0GB	WangDat 3100	$499
2.0GB	HP 35470	$499
2.0GB	ExaByte 4200	$749
4.0GB	Conner 4324	$559
4.0GB	WangDat 3200	$529
4.0GB	HP 1536	$599
4.0GB	HP 35480	$599
4.0GB	ExaByte B205XL	$899
8.0GB	Conner 4326	$659
8.0GB	WangDat 3400	$659
8.0GB	HP 1533	$859
8.0GB	Conner CTDB000	$659
8.0GB	Sony 5000	$659
14.0GB	ExaByte 8505XL	$1799
16.0GB	Conner 4584	$999

Wide SCSI Drives

1.0GB	IBM DFHS	$269
1.0GB	Quantum 31070W	$269
2.0GB	Fujitsu 2915QAU	$449
2.0GB	IBM DORS-W Ultra	$409
2.0GB	IBM DFRS-W	$359
2.0GB	Quantum 32150W	$529
2.0GB	Quantum 32151W	$459
2.0GB	Quantum 32170W	$439
2.0GB	Quantum DSP3210W	$349
2.0GB	Seagate 32430W	$559
2.0GB	Seagate 32550W	$679
2.0GB	Seagate 32155W Ultra	$509
2.0GB	Seagate 32171W	$759
4.0GB	Conner 4207W	$929
4.0GB	Fujitsu 2934QAU	$859
4.0GB	Micropolis 3243W	$949
4.0GB	Micropolis 4345W	$1009
4.0GB	Quantum 34301W	$829
4.0GB	Quantum 34300W	$859
4.0GB	Quantum 34550W	$999
4.0GB	Seagate 15230W	$979
4.0GB	Seagate 15150W	$1099
4.0GB	Seagate 34371W	$1199
8.7GB	Micropolis 3387W	$1699
9.0GB	IBM 39100W	$1759
9.0GB	Micropolis 1991W	$1759
9.0GB	Seagate 410800W	$1895
9.0GB	Seagate 19171W	$2099

3.0GB SCSI Seagate 43400N $349

2.0GB SCSI IBM DFMS $339

Always the Low Price Leader! Super High-Capacity Experts!

2.5" Notebook Drives

IDE Drives		
340MB	Seagate 93B5AG	$169
520MB	Seagate 9655AG	$189
540MB	IBM DBOA-2540	$189
540MB	WD AL2540	$139
730MB	IBM 2720	$209
810MB	Fujitsu 2713TA	$229
810MB	IBM 2B10	$249
810MB	Toshiba MK1926FCV	$269
1.0GB	Fujitsu 2714TA	$299
1.0GB	IBM SANADA-21080	$339
1.0GB	Toshiba 2731	$339
1.3GB	Seagate 91350A	$349
1.3GB	Toshiba 2720FC	$349
1.3GB	Toshiba 1310MAV	$359
1.7GB	Toshiba 1701	$379
2.0GB	Toshiba 2101MAN	$499
2.0GB	IBM DCRA-22160	$529

BASON MEMORY WAREHOUSE

Call us!
Or visit our Web Page for everyday new low prices!
800-400-9064
http://www.basoncomputer.com

Standard 30-Pin SIMM

4MB	4x3/4x9	$25/$35

Standard 72-Pin SIMM

4MB	1x32/36	$19/ $29
8MB	2x32/36	$39/ $59
16MB	4x32/36	$79/ $99
32MB	8x32/36	$159/$195

EDO 72-Pin SIMM

4MB	1x32	$19
8MB	2x32	$39
16MB	4x32	$79
32MB	8x32	$159

72-Pin DIMM for Notebook

16MB	4x32	5.0V	$145
16MB	4x32	3.3V	$185

Memory for name brand notebooks also available

- 30 day money back guarantee
- Same day shipping on most orders
- No surcharge for credit cards
- Please add $59 for external drives
- Prices are subject to change without notice

Call: (818)727-9054 • Fax: (818)727-9066
E-Mail: basonwm@basoncomputer.com
http://www.basoncomputer.com

CIRCLE 401 ON READER SERVICE CARD

THE FINEST PC CIRCUIT BOARDS!!!

HSB COMPUTER LABORATORIES

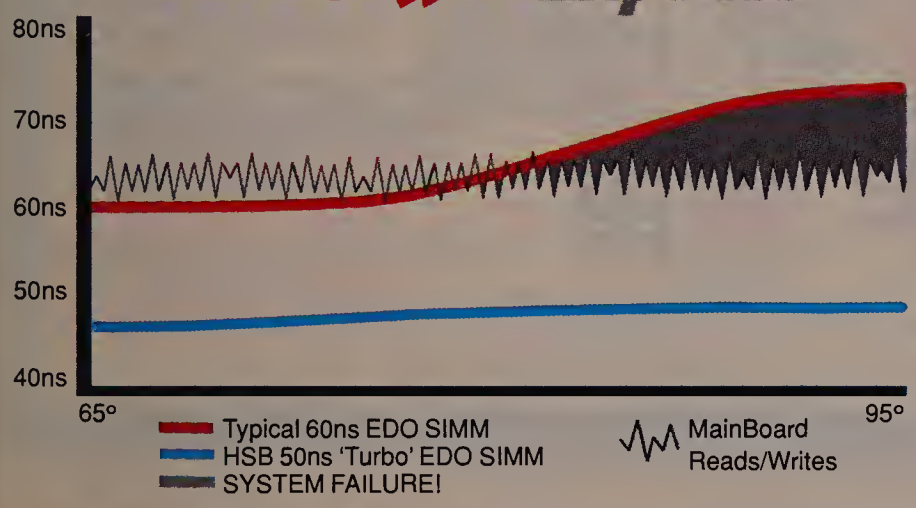
the nation's largest full-line PC circuit board specific manufacturer and distributor caters to individuals and businesses interested In only the finest hardware and service at the best price, provided by a long term, financially stable company. For over a decade, we at HSB have earned our standing as the most reputable circuit board manufacturer and distributor in the industry. Don't make the mistake of buying 'Throw-Away' circuit boards from a company without any long term commitment to your satisfaction. If we sound like what you're looking for, please give us a call at...

(800) 497-0401

CUSTOMER SERVICE...

- ✓ A rigorous 72 hour burn-in procedure. We will not ship any board that does not perform flawlessly.
- ✓ A full 3 year warranty on all HSB made circuit boards. This warranty covers 100% of both parts and labor.
- ✓ A limited lifetime warranty is included on all 'Turbo' SIMM and DIMM memory modules, and all CPU's.

TurboRAMExpress



For about the same price you'd pay for unreliable, 'Bargain Basement' memory, you could have the finest memory the industry has to offer, on hand just a day after you place your order. Quality MainBoards need 60ns memory as an absolute minimum. Heat, humidity and time can radically slow down your memory's access speed. Why run your PC at the ragged-edge of stability? Insist on 'Turbo' RAM...

From us you'll receive...

- Free overnight express shipping on all 'Turbo' RAM.
- Same day shipping on virtually all memory orders placed by 5pm EST.
- Guaranteed compatibility.
- Our 60 day 100% money-back guarantee.
- One of the nation's largest 'Turbo' RAM inventories.

HSB 64-Bit AT and ATX MainBoards

Our MainBoards are the finest on the market, designed from the ground up to compete head-to-head with the most expensive and sophisticated designs available. Our MainBoards are guaranteed to outperform all other comparable PC MainBoards. You'll also receive our unparalleled three year manufacturer's warranty covering 100% of both parts and labor on all HSB circuit boards. Whether you're upgrading your existing system, or building a new one from scratch, you can't go wrong with HSB...

HSB 'Turbo' RAM Memory

Our 72-Pin EDO SIMM's are tested down to 50ns for the utmost in compatibility, stability and speed. Our 55ns ECC SIMM's are specifically engineered to take full advantage of 'Error Correction Circuitry' capable MainBoard chipsets. Keep in mind that our top grade memory modules are assembled right here in the USA, and feature an unprecedented limited lifetime warranty against manufacturing defects. If your philosophy is 'Nothing But The Best', we also offer a wide selection of the industry's fastest 168-Pin Synchronous DIMM memory modules...

HSB 128-Bit and 64-Bit PCI Bus Video Cards

As is the case with all of our MainBoards, HSB manufactures and distributes only the fastest, most reliable and trouble free video accelerators available. All HSB OEM video cards are PCI 'Plug & Play' compatible, offer up to 16.7M color capability, feature a full 3 year warranty and boast the guaranteed fastest, most up-to-date video drivers for all popular software and operating systems, with the finest 24-hour OEM BBS video driver support. Always remember that video cards are only as fast and stable as the drivers that work with them...

HSB COMPUTER LABORATORIES

MANUFACTURERS • DISTRIBUTORS • WHOLESALERS

Please call for up to the minute pricing, or to receive your free color catalog!

HSB gladly accepts major credit cards and COD's. HSB Corporation - 34208 Aurora Road #297 Cleveland, OH 44139 216-498-1356 [Local] 216-498-1374 [Fax]

Windows NT 4 • Solaris • Linux • Windows 95 • OS/2 • PC-DOS • SCO UNIX

QNX • FreeBSD • Warp • Lynx OS • Coherent Unix

NetWare • NeXT Step • Windows 95 • UnixWare • XENIX

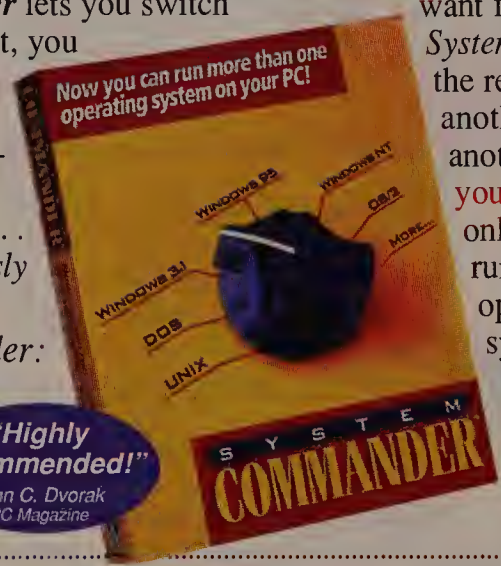
Win 95 without Risk!

Now you can run both Win 95 and DOS/Win 3.x on the same PC!

If you're considering Windows 95, but have "update phobia", new ***System Commander*** lets you switch without fear! In fact, you can run Win 95, 3.1, NT, OS/2, and DOS without repartitioning your PC unless you want to . . . . . *safely, effortlessly and inexpensively.*

System Commander:

- prepares your PC automatically for new operating systems in 5 minutes • it's so easy to use - just select the OS you want from the menu and *System Commander* does the rest; reboot and make another selection to use another OS • it saves you money - you need only one machine to run dozens of operating systems!



"Highly recommended!" John C. Dvorak PC Magazine

1995 BYTE POURNELLE'S USER'S CHOICE AWARD April 1996

PC MAGAZINE BEST OF 1996 Jan 7, 1997

SYSTEM COMMANDER is only $99.95 and comes with an unconditional 60-day money back guarantee.

Get FREE overnight shipping when you mention this ad.*

Call today, have it tomorrow!*

800-648-8266

www.v-com.com

Look for System Commander in the Utilities section of most major software stores.

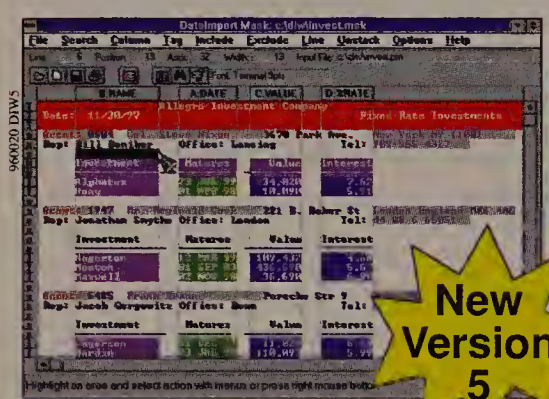
V Communications, Inc. • 4320 Stevens Creek Blvd, #120-PCW7 • San Jose, CA 95129 • (408) 296-4224 • Fax (408) 296-4441

* When ordered before noon PST. No Saturday delivery. Continental US. CA res. add $7.25 sales tax. Offer subject to change without notice.
All logos and product names are trademarks of their respective companies. VISA/MC/Amex ©1997

Windows 3.x • DOS/V • Windows 95J • Warp 4 • MS-DOS • Linux • CTOS

CIRCLE 468 ON READER SERVICE CARD

Garbage In... ...Data Out!



New Version 5

Pull data from any computer report into:

Access
Excel
dBase
HTML Tables
1-2-3
Paradox
Approach
Quattro
Clarion
and more!

DataImport®
File Translation Utility for Windows

Go far *beyond* the meager limitations of import wizards and parsers. Selectively **mine data** from even complex multi-level reports and forms printed-to-disk. DataImport makes it easy to dynamically clean-up reports, parse names and rearrange data. Instantly create new files or add data to existing files.

DataImport does it all!

$189 Single User **$495** 5-User LAN

SPALDING SOFTWARE

Free Demo & Test Drive:
www.spaldingsoft.com
Voice: (770) 449-0594
Fax: (770) 449-0052
Norcross, Georgia USA

MasterCard DISCOVER NOVUS AMERICAN EXPRESS VISA

CIRCLE 434 ON READER SERVICE CARD

Get Direct Access to 150,000 Key Management Buyers!

Mailed six times a year, PC World Action Cards are a uniquely effective card deck advertising program delivering 150,000 PC-proficient managers who buy direct and have bought a PC-related product within the last 90 days via Direct Response. 60% of them receive no other card deck! Frequency discounts are available to advertisers in PC World's Marketplace Advertising section.

PC WORLD ACTION CARDS
50 Washington Street, Norwalk, CT 06854-2710

For more information, call
(Eastern U.S.) 203-857-5101
(Western U.S.) 203-857-5102

PC WORLD Business Class UTILITIES ◆ WINDOWS

BUSINESS APPLICATIONS

The Data Entry Emulator™

Full featured, heads-down data entry, with...

- Two-pass verification
- Powerful editing capability
- Easy output reformatting
- Paint the screen formatting
- Supervisor & batch control
- Customizable menus
- Operator statistics
- Key from images (NEW!)
- Tutorial exercises

FREE 30-day trial

PC | PC LAN | S/36 | AS/400

COMPUTER KEYES
21929 Makah Rd.
Woodway, WA 98020
Fax: 206-776-7210
Tel: 206-776-6443
USA: 800-356-0203

MULTIMEDIA/CD-ROM

65 GIGABYTES OF CD STORAGE STARTING UNDER $5,500.00

Introducing

Elms™ DVL™ CD-Library and Panorama™ CD-Management Software.

STANDARD FEATURES

Removable, Bar-Coded Magazines hold 20 CDs each.

Manage 100 CDs on-line– 65 gigabytes in 5 magazines.

Organize and track 5000 CDs– up to 3.2 terabytes.

Record 100 CDs automatically.

Configure up to 4 drives– CD-ROM or CD-R.

Windows® 95™ & NT™ Software.

Field upgradable drives.

INTRODUCTORY SPECIAL

PURCHASE AN ELMS™ DVL™ BY 4/30/97 AND GET AN UPGRADE TO CD-R FREE.
(Includes hardware & software)

$2,000 VALUE

CALL NOW!
(888)356-7385

MasterCard VISA

visit us at www.elms.com

Elms™

Elms Systems Corporation
2 Holland • Irvine, CA 92618
(714) 461-3200
(714) 461-0671 Fax
(888) Elms-DVL (356-7385)

Trademarks remain the property of their respective owners. ©1996, Elms Systems Corporation. All rights reserved. Prices and specifications subject to change without notice.

CODE: M102

CIRCLE 436 ON READER SERVICE CARD

SERVICES/SUPPLIES

DATA RECOVERY: 800 440-1904

Seven good reasons to choose DriveSavers:

1. We're most trusted and respected data recovery specialists
2. 24-hr, onsite and weekend service available
3. Proprietary techniques so advanced we retrieve data others might simply abandon
4. Certified to maintain most drive warranties
5. Over 11 years of data recovery experience
6. Featured by CNN, NextStep, C-Net, and *Forbes*
7. All storage devices; Dos, Win95, WinNT, OS/2, Mac OS, Unix, Sun, SGI, Novell

Call when you need us, or visit DriveSavers at: www.drivesavers.com
400 BEL MARIN KEYS BL., NOVATO, CA 94949, VOICE: 415-382-2000, FAX: 415-883-0780

CIRCLE 431 ON READER SERVICE CARD

BUSINESS APPLICATIONS

LASER AND INK JET PRINTER LABELS

Nobody but NOBODY beats our prices - or our quality.

DeskTop offers first class printer labels at the lowest prices anywhere - 30% to 40% less than advertised or even store brands.

Full selection, unsurpassed quality: all popular sizes, styles and applications. Direct from the manufacturer with a Money-back guarantee.

Visa, Mastercard accepted.

DeskTopLabels
7277 Boone Avenue North,
Minneapolis, Minnesota 55128-1519

Check us out on the web!
http://desktop.meyers.com
or call today 800-241-9730

CIRCLE 422 ON READER SERVICE CARD

SERVICES/SUPPLIES

Insures Your Computer

SAFEWARE's Computerowners insurance policy provides for repair or replacement of your computer hardware, media and purchased software. Annual premiums start at $49. Cover against theft, fire, power surge, natural disasters, and even accidental damage!

Call 1-800-800-1492

SAFEWARE, The Insurance Agency Inc.
5760 N. High Street
PO Box 656
Columbus, OH 43085
Local: 1-614-781-1492

CIRCLE 421 ON READER SERVICE CARD

SERVICES/SUPPLIES

1-800-8-GLOBAL
GLOBAL®

FREE catalog

228 page guide to computer furniture, supplies & accessories

COMPUTER SUPPLIES
11 Harbor Park Dr.
Dept. 94 PCW
Port Washington, NY 11050

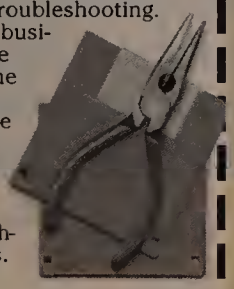
CIRCLE 508 ON READER SERVICE CARD

EDUCATION

Be a PC repair expert!

CAREER-LEVEL HOME STUDY

Learn PC repair, upgrading, installation, and troubleshooting. Open your own business, or increase your value on the job. Our professional-level home study program lets you learn—and then earn—*without* a costly workshop or high-tech instruments. **Send or call 24 hours a day for your free literature.**



Call 800-223-4542

Name _____
Address _____
City/State _____ Zip _____
Age _____ Phone ( ) _____

The School of PC Repair
PCDI, 6065 Roswell Road
Dept. JJC684, Atlanta, GA 30328

CIRCLE 451 ON READER SERVICE CARD

BUSINESS APPLICATIONS

CHURCH SOFTWARE

Discover for yourself why more churches are choosing **PowerChurch Plus.®**
Try out the leading membership and accounting package.
Call today for Free information in the mail.

F1 Software, 208 Ridgefield Drive, Asheville, NC 28806
800/486-1800

CIRCLE 482 ON READER SERVICE CARD

SERVICES/SUPPLIES

MIRROR IMAGES

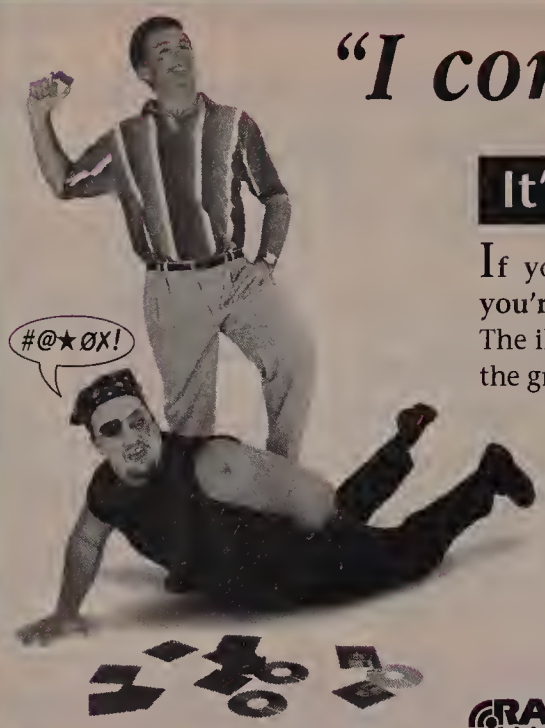
DISKETTE DUPLICATION

Superior duplication . . .
Your reputation depends on it.
Our reputation assures you of it.

- ALL DISK FORMATS
- FAST 24 HOUR TURNAROUND
- EXCEPTIONAL PRICING AND SERVICE

Call for more information and quotation.

800-322-0577
OHIO - NEW JERSEY



"I conquered software piracy!"

It's easy with the NEW SentinelWizard GUI

If you sell software without protection, you're losing sales and revenue to piracy. The illegal distribution and use of software is the greatest threat to your company's success.

Fight back! Conquer piracy and ensure your revenue with Sentinel®, the world's #1 software protection.

Visit our web site
www.rnbo.com

The most advanced protection is now the easiest to implement. Sentinel features the new SentinelWizard™ GUI to guide you quickly through the implementation process.

Now it's easy to conquer piracy! Call and order your Sentinel Developer's Kit today!

1-800-852-8569

SENTINEL Software Protection

RAINBOW TECHNOLOGIES 50 Technology Drive, Irvine, CA 92618 ■ Tel: (714) 450-7300 ■ Fax: (714) 450-7450 ■ *Distributors worldwide*
©1996 Rainbow Technologies, Inc. Sentinel and SentinelWizard are trademarks of Rainbow Technologies. All other product names are property of their respective owners.

CIRCLE 411 ON READER SERVICE CARD

SERVICES/SUPPLIES

EQUIPMENT FOR SALE

LAMBDA QUALIDYNE

100 Pieces

400 Watt Power Supplies
Cat.#4B4AA2A-1783
Input 115/230VAC. 47-63Hz
Outputs: 4 Channels,
ability to perform
higher settings.
FCC/VDE Class A

Call J. O'Sulivan
516-677-7218

CIRCLE 426 ON READER SERVICE CARD

SOFTWARE GENERAL

Software Blowout

1000's of low cost programs
Call for **FREE** catalog
MSDOS 6.22 $30; MS Golf $10
11thHour $25; FaxWorks Pro 3.0 $20
QuickBooks Pro 5.0 $160; Return to Zork $10
Lost Treasures of Infocom $10
Windows 3.1 $50; FloorPlan Plus 3D Windows $10
ColorForms $5; Lion King Screen Scenes $10
QuickBooks Deluxe 3.0 CD $50; Windows 3.0 $20
PeachTree Accounting 3.5 Win $90
DOS 5.0 $15; DacEasy Accounting 2.0 Win $30
7TH Guest CD $20; Warcraft II CD $35
Civilization CD $10; Civilization II $35
Personal Law Firm $5; ACT 3.0 $150
Star Trek Font Pack $5; Dragon's Lair $10
1000's of other titles, call for availability.
+Shipping & Handling; Quantities limited.
www.SoftwareOutlet.com

Software Clearance Outlet
3501 W. Moore Ave. #C
Santa Ana, CA 92704
E-Mail: SCOUTLET@AOL.COM
(800)230-SOFT • (714)434-6425
FAX (714)434-4799

CIRCLE 462 ON READER SERVICE CARD

UPGRADES/MEMORY

Add SEVEN Slots

With the DCS *SLOT BOX*®

For Pentium, 686, 586, 486, and 386 Systems... $489
Adds SEVEN 16 bit ISA expansion slots

Compaq Upgrade Motherboards

486DX4-133	$ 389
686-P166+	$ 499
Pentium 150	$ 649
Pentium 166	$ 699

DCS Industries 800-537-3539
FAX 614-592-1527 Call for FREE
Local 614-594-4180 Catalog

CIRCLE 465 ON READER SERVICE CARD

UPGRADES/MEMORY

TANDY
UPGRADES

Hard Cards for 1000's
21meg **$169** 210meg **$229**
42meg **$219** 540meg **$279**

1000 EX & HX Hard Drives
21meg **$239** 540meg **$349**

Upgrade Motherboards
80486DX/4-133 **$389**
686-166 **$499**

We sell New and Used Hard Drives, Floppy Drives, Motherboards, Memory, Keyboards, VGA & CGA Monitors/Cards, and more for Tandy.
Call or write for our FREE catalog.
We buy used Tandy computer equipment.

DCS Industries
5265 Hebbardsville Rd.
Athens, OH 45701
800-537-3539
U.S. & Canada

Foreign
614-594-4180
FAX
614-592-1527

CIRCLE 493 ON READER SERVICE CARD

UPGRADES/MEMORY

DIRECT PRICES TO THE PUBLIC
We Will Beat Any Advertised Price!

All memory is brand new & comes with a lifetime warranty!

MEMORY 72 pin EDO

1 x 32–60	$13
2 x 32–60	$19
4 x 32–60	$42
8 x 32–60	$119

CPU's (Intel Only)

P–100Mhz	$109
P–120Mhz	$129
P–133Mhz	$179
P–150Mhz	$239
P–166Mhz	$329
P–200Mhz	$449
P–Pro 180	$419
P–Pro 200	$739

HARD DRIVES

850MB	$119
1.2GB	$149
2.1GB	$189
2.5GB	$228
3.2GB	$299

MOTHER BOARDS

586–75–200Mhz $88
Intel VX 430 Chipset, 256kpb cache, 2s2p on brd IDE/IO

MODEMS

33.6 int fax/data	$67
33.7 int voice/fax	$73

SOUND CARDS

VIBRA 16 PnP	$48
SB 32 Pnp	$89
SB 64 PnP	$159

VIDEO CARDS

Matrox	$119
Mystique	$109
Dia3d2MB	$77

CD ROMS

4x int	$45
8x int	$79
10x int	$109
12x int	$129
16x int	$199

Over 1000 items in stock, check out our cool website www.memory-online.com

800-801-0087

714-488-0477 • Fax 714-488-0495

MEMORY ON-LINE

Office Hours M - F • 7 - 5 PST • SAT 8 - 12 PST

Prices and availability subject to change without notice.

CIRCLE 466 ON READER SERVICE CARD

RECREATION

FANTASY SOFTWARE

RELIEVE THE STRESS OF DAILY LIFE WITH OUR

FANTASY DISKS

FANTASY VGA MOVIES – Over 1 MB – TALK thru your speaker or SoundBlaster. 1 Movie $29 · 3 Movies $65 · 5 Movies $94

FANTASY VGA GAME – Over 5 MB with SOUND - 80 Romantic Scenes – 2-8 Players $79 or $69 w/ purchase of any FANTASY MOVIE above

FANTASY PICTURE CD-ROM – 1000+ VGA pictures, with interactive database - search by YOUR grade, category, description, or date viewed.

FANTASY INTERACTIVE MOVIE CD-ROM – 1full length movie spoof of Plan 9 from Outer Space with scenes from the original - create unlimited GIFS from movie.

FANTASY GAME CD-ROM – 2 CD-ROM set containing 1200 MB of movies plus 4 challenging multi-level arcade games.

FREE VHS VIDEO TAPE (1-2 hr) with each CD-ROM: $59 each or all 3 for $149.

Orders Only: 800-243-1515 Ext. 600 CE

24 HRS/7 DAYS • In PA Add Tax

3.5" or Foreign Orders Add $2 per disk

CK/MO to: S Software, P.O. Box 220, Dept. 600CE, Hatfield, PA 19440 / ADD $3 S/H

$1.50 SHAREWARE SPECTACULAR
FREE CATALOG - 600+ PROGRAMS

CIRCLE 405 ON READER SERVICE CARD

RECREATION

www.legend-online.com

LEGEND Graphics Online

Ultimate BBS!

WORLD'S EXOTIC Connection!

☆ Adult
☆ BBS
☆ Internet

VISA · MasterCard · DISCOVER

VIA MODEM 909·689·9229

telnet: bbs.legend-online.com (207.105.197.40)

Not Recommended for Minors.

CIRCLE 460 ON READER SERVICE CARD

UPGRADES/MEMORY

WE'LL PAY *YOU* FOR YOUR OLD MEMORY

1x9, 4x9, 30 Pin, 1x32, 2x32, 4x32, 1x36, 2x36, 4x36, 8x36, 72 Pin

TRADE-IN **$ ANY SIMMS $** UPGRADE

NOTEBOOK, LAPTOP, SUBNOTE, CREDIT CARD (IC DRAM) MODULES

ALL MEMORY HAS VALUE

WE NOW BUY & SELL CPU's

OVER 30 YEARS EXPERIENCE

SOJ TSOP ZIP DRAM, VRAM IBM

THE MEMORY LIQUIDATORS

"The company that buys memory back"

1-800-718-7755

531 Main St., Ste.1174, El Segundo, CA 90245 • Ph. 310-326-5656 • Fax 310-326-7790

CIRCLE 520 ON READER SERVICE CARD

RECREATION

CLUB CHACALTAYA

ONE on ONE LIVE VIDEO

All it takes is a modem and a PC.

http://www.chacaltaya.com

Or dial the Chacaltaya BBS at

011-373-870-9999

press enter after connection

and let Marilyn guide you to...

CLUB CHACALTAYA

free pics - free pics - free pics - free

not recommended for minors

RECREATION

world wide bbs

- GET EXOTIC IMAGES, SHAREWARE, & WINDOWS/DOS FILES
- UPDATED DAILY!
- FREE UNLIMITED DOWNLOADS!
- NO SUBSCRIPTION REQUIRED!
- AND NOW...LIVE VIDEO GIRLS!

USE YOUR MODEM TO DIAL

011-373-837-1238

MCI CALLERS: DIAL 10288 FIRST, THEN #.

INTERNATIONAL LONG DISTANCE RATES APPLY.
NOT RECOMMENDED FOR MINORS

BUSINESS DIRECTORY

AUSTRALIAN MADE Windows Based Accounting Software developed in Microsoft Access
USA & other world territory rights available. Contact
COMMONcents Pty Limited
ACN 064 227 747
GPO Box 5154
SYDNEY 2000 Australia.
Fax +612 9223 2230
Tel +612 9223 2227 or
E-Mail comcents@ozemail.com.au

MAIL ORDER PROCESSING SOFTWARE

- Order Entry
- Credit Card Processing
- UPS Manifest
- Inventory
- Mail List Management
- Advertising Tracking
- Versions under $500

PC INNOVATIONS
1-800-774-6668

CIRCLE 471 ON READER SERVICE CARD

PC WORLD DELIVERS THE BUYERS YOU NEED TO REACH

Study after study has proven that managers proficient with PCs now control the business PC buying process. Make sure your advertising gets maximum exposure in your best target market.

USED SOFTWARE

- Used IBM Compatible Software
- Most Popular Titles Available
- Save up to 50% on Current Versions
- Huge Savings on Prior Versions
- Includes Original Manuals & Disks
- Guaranteed Complete & Virus Free
- 30 Day Money Back Guarantee
- Amex, Discover, MC & VISA
- Call 7am–4pm PST M–F for Free Price List

Recycled Software, Inc.
PO Box 33999
Las Vegas, NV 89133-3999
800-851-2425 • Fax 702-655-5662

CIRCLE 441 ON READER SERVICE CARD

PC WORLD'S PC-proficient managers are involved throughout the purchase process.

- 81% determine the need for products & their features
- 85% suggest, evaluate or recommend specific brand models
- 55% make the final buying decision

Call Now for More Information

PC WORLD MARKETPLACE

(203) 857-5101 or (203) 857-5102

ADDRESS FOR SUCCESS

http://www.aics.edu

Welcome to the AICS Virtual Campus

- Earn B.S. and M.S. in Computer Science through DISTANCE EDUCATION
- Approved by more than 250 companies
- Follows ACM/IEEE guidelines
- Thousands of students throughout U.S.

AMERICAN INSTITUTE FOR COMPUTER SCIENCES

Free catalogue
1-800-767-AICS
or ***http://www.aics.edu***

ACCREDITED MEMBER World Association of Universities and Colleges

GET MORE

PC WORLD online

MORE PLACES
MORE READERS
MORE SOFTWARE
MORE TIPS
MORE REVIEWS
MORE INTERACTIVITY
MORE ANSWERS

PC WORLD ONLINE DELIVERS!

Web: http://www.pcworld.com
America Online: keyword pcworld
Prodigy: jump pcworld
CompuServe: go pcworld
MSN: go pcworld

Bar Codes Direct

FROM THE MANUFACTURER

Labeling Software

For Dot Matrix or LaserJet

WINDOWS AND DOS!

- Any Format, Any Label. WYSIWYG, Text Design
- **Formats for Sears, K-Mart, Penney's, WalMart, TCIF, Logmars, AIAG, etc.**
- UCC-128, UPC/EAN, 2 of 5, Codabar, & Code 39
- Big Text and PCX. Powerful, Versatile, Easy!
- Imports ASCII data files from dBase, etc.
- LabelRIGHT™ for **Windows™ – $295**
- LabelRIGHT™ for **DOS–$279**

Bar Codes for Windows™

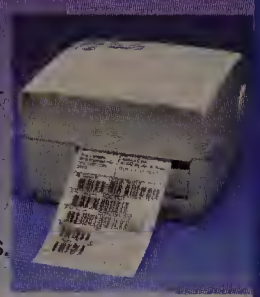
- Insert bar codes into any font based Windows program via "Hot Key"
- UPC/EAN, UCC-128,128, 2of5, Codabar, Code 39
- Fonts, Bitmaps and Metafiles, Complete – **$199**

Radio Frequency Terminal

- For IBM or Macintosh Computers

- 400 to 1000 foot Range
- 16 Selectable Frequencies
- 2 way RS-232 Communication
- Kybrd, Wand, Laser or CCD
- 1-16 Terminals/Base Station
- 6.3" x 3.3" x 1.25", 14 oz.
- Base Station – **$845**
- Complete Terminal – **$1090**
- With Integrated Laser – **$1790**

Thermal Transfer Printers

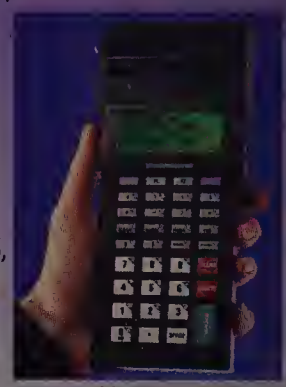


- 2"per second Thermal Transfer – Up to 4"wide
- Supports all Popular Bar Codes; 1 year Warranty
- Prints Bar Codes, Big Text, and PCX Graphics
- Small size, Weighs 20 lbs.
- Complete with labels, ribbon, cable, LabelRIGHT Windows or DOS software, and Datamax Ovation Printer – **$1095**

Portable Bar Code Readers

for PC, Mac and Serial

WITH VOICE!



- Battery Operated Reader – 64K or 256K
- Attaches as 2nd Keyboard or Serial
- Display messages & voice messages prompt operator.
- Pick lists, tables.
- Wand, CCD or Laser Scanner
- UPC/EAN, 128, 2of5, MSI, Code 39, etc.
- Date/time stamps
- Built-in Inventory Programs -No Programming Necessary
- **Very Easy to Create Custom Prompts**
- Small Size-Weighs Only 12 oz.
- 64K Unit Complete with Wand & Voice – **$759**
- 64K Unit with Integrated Laser– **$1299**

Bar Code Readers

for PC, XT, AT, PS/2, Mac and RS-232 Terminals

- Attaches as 2nd Keyboard
- UPC/EAN, Code 128, 2of5, MSI, Code 39, etc.
- Wand, Magstripe, CCD, Slot Badge or Laser
- All European Keyboards Supported
- Superior Read Rates. Made in USA.
- **Top Rated by Independent Reviews**
- Complete Wand only Reader – **$299**
- Complete with Laser Scanner – **$649**

Cordless RF CCD Scanner

- Transmits up to 100' away from Base Station
- Base attaches as 2nd Keyboard to PC or Mac
- Complete Base Station and "Laser-like" RF CCD Scanner with 5" depth of field – **$899**

Ordering is Easy! 800-345-4220

Europe Phone: (353) 1 6614 566 • Europe Fax: (353) 1 6614 622 USA Phone: 408-458-9938 • USA Fax: 408-458-9964

- Same Day Shipping
- 30 Day Money Back Guarantee
- Direct from Manufacturer
- Free "800" Support
- Free UPS Blue in USA

In Europe call our Ireland Office:
353 1 6614 566 (Fax: 353 1 6614 622)

WORTHINGTON DATA SOLUTIONS

CALL FOR FREE CATALOG AND BAR CODE PRIMER!

FREE PRODUCT INFORMATION PC WORLD

NAME

TITLE

COMPANY

ADDRESS

CITY STATE ZIP

PHONE ( ) FAX ( )

INFORMATION FROM ADVERTISERS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220
221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240
241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260
401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420
421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440
441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460
461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480
481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500
501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520

☐ Check here for a 1-year (12 issue) subscription (U.S. only). You will be billed $19.97.

Circle the number corresponding to the product or product category you need to know more about. Mail or fax the completed card today. Manufacturers will send product information directly to you. Fax to (503) 684-5370.

PRODUCTS FEATURED IN EDITORIAL

601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620
621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640
641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660
661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680
681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700
701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720
721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740
741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760
761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780
781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800
801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820
821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840
841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860
861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880
881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900

PRODUCT CATEGORY INFORMATION 3/97

For information on all of the products mentioned in an article or an entire category of advertised products, circle the appropriate number below.

Editorial Features (see article for numbers)

901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920

Advertised Products

951 Desktop computers
952 Notebook computers
953 Windows 95 software
954 Monitors and video boards
955 Accounting software
956 Graphics software
957 Network/sharing products
958 Printers
959 Multimedia products
960 Utilities
961 Mail order companies
962 Storage devices

March 1997 This card expires July 11, 1997 M1

FREE PRODUCT INFORMATION

For quicker response, fax to (503)684-5370

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 848 PORTLAND OR

POSTAGE WILL BE PAID BY ADDRESSEE

PC WORLD

READER SERVICE DEPARTMENT
12950 SW PACIFIC HWY STE 7
TIGARD OR 97223-9750

FREE PRODUCT INFORMATION PC WORLD

NAME

TITLE

COMPANY

ADDRESS

CITY STATE ZIP

PHONE ( ) FAX ( )

INFORMATION FROM ADVERTISERS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220
221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240
241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260
401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420
421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440
441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460
461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480
481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500
501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520

☐ Check here for a 1-year (12 issue) subscription (U.S. only). You will be billed $19.97.

Circle the number corresponding to the product or product category you need to know more about. Mail or fax the completed card today. Manufacturers will send product information directly to you. Fax to (503) 684-5370.

PRODUCTS FEATURED IN EDITORIAL

601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620
621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640
641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660
661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680
681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700
701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720
721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740
741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760
761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780
781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800
801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820
821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840
841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860
861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880
881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900

PRODUCT CATEGORY INFORMATION 3/97

For information on all of the products mentioned in an article or an entire category of advertised products, circle the appropriate number below.

Editorial Features (see article for numbers)

901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920

Advertised Products

951 Desktop computers
952 Notebook computers
953 Windows 95 software
954 Monitors and video boards
955 Accounting software
956 Graphics software
957 Network/sharing products
958 Printers
959 Multimedia products
960 Utilities
961 Mail order companies
962 Storage devices

March 1997 This card expires July 11, 1997 M3

FREE PRODUCT INFORMATION

For quicker response, fax to (503)684-5370

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 848 PORTLAND OR

POSTAGE WILL BE PAID BY ADDRESSEE

PC WORLD

READER SERVICE DEPARTMENT
12950 SW PACIFIC HWY STE 7
TIGARD OR 97223-9750

FREE PRODUCT INFORMATION PC WORLD

NAME

TITLE

COMPANY

ADDRESS

CITY STATE ZIP

PHONE ( ) FAX ( )

INFORMATION FROM ADVERTISERS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220
221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240
241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260
401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420
421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440
441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460
461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480
481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500
501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520

☐ Check here for a 1-year (12 issue) subscription (U.S. only). You will be billed $19.97.

Circle the number corresponding to the product or product category you need to know more about. Mail or fax the completed card today. Manufacturers will send product information directly to you. Fax to (503) 684-5370.

PRODUCTS FEATURED IN EDITORIAL

601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620
621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640
641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660
661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680
681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700
701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720
721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740
741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760
761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780
781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800
801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820
821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840
841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860
861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880
881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900

PRODUCT CATEGORY INFORMATION

3/97

For information on all of the products mentioned in an article or an entire category of advertised products, circle the appropriate number below.

Editorial Features (see article for numbers)

901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920

Advertised Products

951 Desktop computers
952 Notebook computers
953 Windows 95 software
954 Monitors and video boards
955 Accounting software
956 Graphics software
957 Network/sharing products
958 Printers
959 Multimedia products
960 Utilities
961 Mail order companies
962 Storage devices

March 1997 This card expires July 11, 1997 M2

FREE PRODUCT INFORMATION

For quicker response, fax to (503)684-5370

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 848 PORTLAND OR

POSTAGE WILL BE PAID BY ADDRESSEE

PC WORLD

READER SERVICE DEPARTMENT
12950 SW PACIFIC HWY STE 7
TIGARD OR 97223-9750

PC WORLD

PRESIDENT AND CEO Richard J. Marino
Assistant to the President and CEO Colette Cornish

PUBLISHER J. Samuel Huey
Assistant to the Publisher Alexis Meagher

ADVERTISING SALES

VICE PRESIDENT, ASSOCIATE PUBLISHER
Jeff Edman

BUSINESS MANAGER
Patricia Owen

DIRECTOR OF ADVERTISING
Bob Carrigan

EAST

EASTERN ADVERTISING DIRECTOR
Bob Ostrow (508/820-0440)

ADMINISTRATIVE ASSISTANT/ OFFICE MANAGER
Ellen Sanderson

Mid-Atlantic/Manhattan/ Eastern Canada
Wayne Silverman, Account Manager (201/587-0090)

New England/Ohio
Michael Carroll, Senior Account Manager (508/820-0440)

Southeast/Pennsylvania
Judy Sutter, Senior Account Manager (770/394-0758)

MIDWEST/TEXAS

MIDWEST ADVERTISING DIRECTOR
Harvey Diamond (972/233-3492)

ADMINISTRATIVE ASSISTANT
Janine Goble

Midwest
Kathy McKay, Account Manager (847/827-4477)

WEST

Mid-S. F. Peninsula/Oregon/ Washington
(415/243-0500)

Fremont, CA/South Bay (area code 408)
Kevin Normandeau, Account Manager (415/243-0500)

West
Duane Hampson, Account Representative (415/243-0500)

Los Angeles/Orange County/ Montana/Wyoming/Western Canada
Bill Hanck, Southwest Advertising Director (310/312-8008)

ADMINISTRATIVE ASSISTANT
Joyce Clarke

Southern California (San Diego), Colorado/Idaho/Nevada/ Utah/New Mexico/Arizona
Lisa Zimmerer, Senior Account Manager (714/250-8081)

CONSUMER ADVERTISING SALES

Eastern U.S.
Edman & Company (212/551-1121)

Michigan/Pennsylvania/Ohio
Hartle & Heth (810/642-7273)

Western U.S.
Hutch Looney & Associates (213/931-3444 x227)

PC WORLD ONLINE SALES

DIRECTOR OF MARKET DEVELOPMENT
Stephen Shore (415/267-4595)

SALES REPRESENTATIVE
Melissa Gruber (415/974-7373)

PC WORLD MARKETPLACE
PC WORLD ACTION CARDS

DIRECTOR
Pat Fales (203/857-5115)

EASTERN ACCOUNT MANAGER
Katherine Noto (203/857-5101)

WESTERN ACCOUNT MANAGER
Renick Morris (203/857-5102)

PC WORLD REPRINTS

Michele Olk (612/582-3810)

MARKETING

SENIOR MARKETING MANAGER
Sandy Wong

PUBLIC RELATIONS MANAGER Lee Doyle

PRESENTATION SPECIALIST Peter Bloch

MARKETING COORDINATOR
Kecia Nordgren

CIRCULATION

VICE PRESIDENT, CIRCULATION
Shawne Burke Pecar

ASSISTANT TO THE VICE PRESIDENT
Ann Dempsey

SENIOR PROMOTION MANAGER
Ellen DiMatteo

CIRCULATION BUSINESS MANAGER
David Cobb

SINGLE COPY SALES MANAGER
Cheryl Stephenson

BILLING AND RENEWAL MANAGER
Lisa Radler

PROMOTION MANAGERS
Richard McCarthy, Shira Weisbach

CIRCULATION ASSISTANT
Daniella Zucker

RESEARCH

VICE PRESIDENT, RESEARCH
Cheryl Brink

RESEARCH MANAGER Jocelyn Ritchie

SENIOR RESEARCH ANALYST Jon Friesch

RESEARCH ANALYST Sandra O'Boyle

PRODUCTION

VICE PRESIDENT, MANUFACTURING
Linda Manes Goodwin

SENIOR PRODUCTION MANAGER
Nadia Maudsley

PRODUCTION MANAGER
Jennifer Darnell

ASSISTANT PRODUCTION MANAGERS
Kathy Badertscher, Nancy Jonathans

AD TRAFFIC COORDINATOR
Harry Topalian

ADVERTISING INFORMATION MANAGER
Dan Gordon

ADVERTISING INFORMATION ASSISTANT
Yuliya Korentsvit

ADMINISTRATION

OFFICE OF THE CEO

MANAGEMENT ASSOCIATES
Benjamin Jones, Angela Weber

HUMAN RESOURCES AND INFORMATION SYSTEMS

VICE PRESIDENT Richard Willoughby

MANAGER Thalia Ohara

REPRESENTATIVE Christine Selfridge

VICE PRESIDENT, CIO Henri Froissart

DIRECTOR NETWORK SYSTEMS
Norman Noble

NETWORK MANAGER
Rodney Barnes

INFORMATION SYSTEMS SPECIALISTS
Pearl Chan, Stan Erhart

FINANCE

SENIOR VICE PRESIDENT, CFO
Vicki Peilen

ACCOUNTING/OPERATIONS MANAGER
Pat Murphy

ACCOUNTING/FACILITIES MANAGER
Michelle Reyes

DIRECTOR OF FINANCIAL OPERATIONS
Madeleine Buckingham

Advertiser Index A-Z

Get more information—circle the appropriate number on the reader service card.

Reader service number		Page
10	ACS Innovations	108
–	Adaptec	54
9	ALR	14
–	Anthro	22
45	APC	90-91
8	Arc Soft, Inc.	173
6	AST Computer	160-161
–	AT & T	75
5	ATI Technologies	71
91	Caere Corporation	253
–	Canon Computer Systems	2-3
–	Casio,Inc.	227
–	Chevrolet Monte Carlo	13
–	Claris	50
61	Compaq Direct Corporation	132-133
35	Compaq Computer Corporation	68-69
53	Compulink	20
–	Computer Book Club	287
68	Computer Discount Warehouse	178-179
46	Computer Discount Warehouse	282-283
70	Corel Corporation	111
93	Corel Corporation	255
74	Cybermax	184-185
81	Dataviz, Inc.	257
–	Dell	76-77, 87
–	Dell	C5 - C8
37	Delorme	83
60	Diamond Multimedia Systems	265
–	Dodge Stratus	217
84	DTK	271
85	EarthLink	269
88	EPS Technologies	191-196
–	Epson America, Inc.	273

PC World is a publication of International Data Group, the world's leading information technology media, research and exposition company. International Data Group publishes over 275 computer publications in over 75 countries. Sixty million people read one or more International Data Group publications each month. International Data Group's publications include: **Argentina:** Annuário de Informática, Computerworld Argentina, PC World Argentina; **Australia:** Australian Macworld, Australian PC World, Australian Reseller News, Computerworld, Computerworld IDD Australia, Digital News Australia, IT Casebook, Network World, Publish, Webmaster; **Austria:** Computerwelt Osterreich, Networks Austria, PC Tip Austria; **Bangladesh:** PC World Bangladesh; **Belarus:** PC World Belarus; **Brazil:** Annuário de Informática, Computerworld, Macworld, Network World Brazil, PC Player, PC World, Publish, Reseller News Brazil, Supergamepower; **Bulgaria:** Computerworld Bulgaria, Macworld Bulgaria, Network World Bulgaria, PC World Bulgaria; **Canada:** CID Canada, Client/Server World, ComputerWorld Canada, InfoWorld Canada, NetworkWorld Canada, WebWorld; **Chile:** Computerworld Chile, PC World Chile; **Colombia:** Computerworld Colombia, PC World Colombia; **Costa Rica:** PC World Centro America; **The Czech and Slovak Republics:** Computerworld Czechoslovakia, internet 4U Czech, Macworld Czech Republic, PC World Czechoslovakia; **Denmark:** Client Server Denmark, Communications World Danmark, Computerworld Danmark, Macworld Danmark, PC World Danmark, Windows Special Denmark, Techworld Denmark; **Dominican Republic:** PC World Republica Dominicana; **Ecuador:** PC World Ecuador; **Egypt:** Computerworld Middle East, PC World Middle East; **El Salvador:** PC World Centro America; **Finland:** MikroPC, Tietoverkko, Tietoviikko; **France:** Distributique, Hebdo, Info PC, Le Monde Informatique, L M I Magazine, Macworld, Reseaux & Telecoms, VAR & SSII Magazine, WebMaster France; **Germany:** Computer Partner, Computerwoche, Computerwoche Extra, Computerwoche FOCUS, Global Online, Macwelt, PC Welt, PC Welt Special Issue; **Greece:** Amiga Computing, GamePro Greece; **Guatemala:** PC World Centro America; **Honduras:** PC World Centro America; **Hong Kong:** Computerworld Hong Kong, PC World Hong Kong, Publish in Asia; **Hungary:** ABCD CD-ROM, Computerworld Szamitastechnika, INteRNeTTO Hungary, PC World Hungary, PC-X Magazin Hungary; **Iceland:** Tolvuheimur PC World Island; **India:** CW Premier 2DD Year Book India, Information Communications World, Information Systems Computerworld, Macworld India, PC World India, Publish in Asia; **Indonesia:** InfoKomputer PC World, Komputek Computerworld, Publish in Asia; **Ireland:** ComputerScope, InfoLive Ireland, PC Live!; **Israel:** Macworld Israel, People & Computers/Computerworld; **Italy:** Computerworld Italia, Macworld Italia, Networking Italia, PC World Italia; **Japan:** DTP World, HP Open World Japan, Macworld Japan, Nikkei Personal Computing, OS/2 World Japan, SunWorld Japan, Windows NT World, Windows World Japan; **Kenya:** PC World East African; **Korea:** Hi-Tech Information, Macworld Korea, PC World Korea; **Latvia:** PC World DatorPasaule Latvia; **Macedonia:** PC World Macedonia; **Malaysia:** Computerworld Malaysia, PC World Malaysia, Publish in Asia; **Malta:** PC World Malta; **Mexico:** Computerworld Mexico, Macworld Mexico, PC World Mexico; **Myanmar:** PC World Myanmar; **Netherlands:** Computer! Totaal, InfoWorld Netherlands, LAN Magazine, LAN World Buyers Guide, Net, Macworld Netherlands, Totaal! Beurskrant Netherlands, WebWereld; **New Zealand:** Absolute Beginners Guide and Plain & Simple Series, Computer Buyer, Computer Industry Directory, Computerworld New Zealand, MTB, Network World, PC World New Zealand; **Nicaragua:** PC World Centro America; **Norway:** CAD/CAM World Norge, Computerworld Norge, CW Rapport, Datamagasinet, Financial Rapport, Kursguide Norge, Macworld Norge, Multimediaworld World Norway, PC World Ekspress Norge, PC World Nettverk, PC World Norge, PC World ProduktGuide Norge; **Pakistan:** Computerworld Pakistan; **Panama:** PC World Panama; **People's Republic of China:** China Computer Users, China Computerworld, China Computerworld Daily, China InfoWorld, China Telecom World Weekly, Computer & Communication, Electronic Design China, Electronics Today, Electronics Weekly, Electronics Weekly, Game Software, Network World China, PC World China, Popular Computer Week, Software Weekly, Software World, Telecom World; **Peru:** Computerworld Peru, PC World Profesional Peru, PC World SoHo Peru; **Philippines:** Click!, Computerworld Philippines, PC World Philippines, Publish in Asia; **Poland:** Computerworld Poland, Computerworld Special Report Poland, Cyber, Macworld Poland, Networld Poland, PC World Komputer; **Portugal:** Cerebro/PC World, Computerworld/Correio Informático, Dealer World Portugal, Mac*In/PC*In Portugal, Multimedia World; **Puerto Rico:** PC World Puerto Rico; **Romania:** Computerworld Romania, PC World Romania, Telecom Romania; **Russia:** CID Russia, Computerworld Russia, Mir PK, Publish, Seti; **Singapore:** Computerworld Singapore, PC World Singapore, Publish in Asia; **Slovenia:** Monitor; **South Africa:** Computing SA, Network World SA, PC World South Africa; **Spain:** Communicaciones World España, Computerworld España, Dealer World España, Macworld España, PC World España; **Sri Lanka:** Infolink PC World; **Sweden:** CAP&Design, Computer Sweden, Corporate Computing Sweden, Internetworld Sweden, it.branschen, Macworld Sweden, MaxiData Sweden, MikroDatorn, Nätverk & Kommunikation, PCaktiv, PC World Sweden, PC Windows World Sweden; **Switzerland:** Computerworld Schweiz, Macworld Schweiz, PCtip; **Taiwan:** Computerworld Taiwan, Macworld Taiwan, NEW ViSiON/Publish, PC World Taiwan, Windows World Taiwan; **Thailand:** Publish in Asia, Thai Computerworld; **Turkey:** Computerworld Turkiye, Macworld Turkiye, Network World Turkiye, PC World Turkiye; **Ukraine:** Computerworld Kiev, Multimedia World Ukraine, PC World Ukraine; **United Kingdom:** Acorn User UK, Amiga Action UK, Amiga Computing UK, Apple Talk UK, Macworld, Parents and Computers UK, PC Advisor, PC Home, PowerPC Business, PSX Pro, The WEB; **United States:** Cable in the Classroom, CIO Magazine, Computerworld, Computerworld Client/Server Journal, DOS World, Federal Computer Week, GamePro Magazine, InfoWorld, JavaWorld, Macworld, NetscapeWorld, Network World, PC Games, PC World, Publish, Video Event, SunWorld Online, THE WEB Magazine, WebMaster and WEBNOW; **Uruguay:** InfoWorld Uruguay; **Venezuela:** Computerworld Venezuela, PC World Venezuela; and **Vietnam:** PC World Vietnam.

Reader service number		Page
101	Fujitsu Computer Products	101
102	Fujitsu Computer Products	103
100	Fujitsu Computer Products	99
89	Fujitsu Computer Products	131
103	Fujitsu PC	58-59
94	Fujitsu PC	56-57
-	Futuris Corp.	238
-	Gateway 2000	33-42, 43
98	Gemini Industries, Inc.	177
-	Hewlett-Packard-Colorado	157
-	Hewlett-Packard-Sure Store	73
-	Hewlett-Packard	128-129
110	Hyundai Monitors Division	98
-	IDC Directions '97	310
108	Iiyama	135
170	KDS	89
128	Kingston Technology Corp.	223
-	LA Trade	289
-	Lexmark	225
96	LG Electronics U.S.A., Inc.	44
-	Logitech	113
139	Macromedia	267
140	Magitronic	233
143	Matrox Graphics, Inc.	46-47
147	MegaHaus Hard Drives	290
-	Micron Electronics	137-142
149	Micron Electronics	8-9
145	Micron Electronics	10-11
149	Micron Electronics	143
149	Micron Electronics	7
-	Microsoft	93, C2 - P1
169	Midwest Computer Works	284-285
157	Midwest Computer Works	286
-	Mind Spring	236
182	Mitsubishi Electronics America	151
154	Monorail	175
203	NEC Laptop	24-25
167	Nexar	153
164	Nokia	23
161	Nomai	169
-	NRI Schools	159, 229-230
-	Okidata	81
162	Olivetti	100
168	Para Systems	261
195	PC America	288
165	PC Connection	280-281
-	PC Universe	103C-D
172	PC World Online	247
129	PCs Compleat	276-279
-	Philips Electronics Velo	263
212	PKWARE	30
151	Princeton Graphics Systems	18-19
184	ProGen Systems	53
225	QMS	95
193	Qualcomm	104
-	Quantex	115-120
189	Quarterdeck Office Systems	207
190	Quarterdeck Office Systems	209
185	Quarterdeck Office Systems	205
204	Ricoh Corporation	171
188	Seiko Instruments	309
207	Shin Ho Electronics	103A-B
206	Smile,Int'l	245
211	Smith Micro	226
-	Sony Electronics, Inc.	96-97
-	Sony Electronics, Inc.	48-49
-	Spot Magic	155
253	SPSS	240
210	STB Systems	234
218	Stefra Corporation	311
124	Tektronix	215
220	Texas Instruments	148-149
228	Toshiba America	84-85
243	Traveling SW	251
240	Twinhead	176
250	UMAX Technologies	67
-	US Robotics	162-163
231	USA Flex	275
224	ViewSonic	26-27
247	ViewSonic	259
-	Visio	102
-	Visioneer	28
251	Western Digital	31
254	WinBook	16-17
257	Xerox Corporation	243

Advertiser Index by Product Category

Get more information—circle the appropriate number on the reader service card.

HARDWARE

Boards/Cards/Chips

5	ATI Technologies	71
60	Diamond Multimedia Systems	265
128	Kingston Technology Corp.	223
143	Matrox Graphics, Inc.	46-47
210	STB Systems	234

Communications

-	US Robotics	162-163

Desktop Computers

9	ALR	14
6	AST Computer	160-161
53	Compulink	20
74	Cybermax	184-185
-	Dell	87
-	Dell	76-77
-	Dell	C5 - C8
84	DTK	271
88	EPS Technologies	191-196
-	Gateway 2000	33-42
-	Gateway 2000	43
-	Hewlett-Packard	128-129
140	Magitronic	233
-	Micron Electronics	137-142
149	Micron Electronics	8-9
149	Micron Electronics	7
149	Micron Electronics	143
154	Monorail	175
167	Nexar	153
-	Philips Electronics Velo	263
184	ProGen Systems	53
-	Quantex	115-120

Laptop/Notebook

-	Casio, Inc.	227
61	Compaq Direct Corporation	132-133
53	Compulink	20
103	Fujitsu PC	58-59
94	Fujitsu PC	56-57
-	Gateway 2000	33-42
-	Gateway 2000	43
140	Magitronic	233
-	Micron Electronics	137-142
145	Micron Electronics	11-Oct
203	NEC Laptop	24-25
162	Olivetti	100
220	Texas Instruments	148-149
228	Toshiba America	84-85
240	Twinhead	176
254	WinBook	16-17

Monitors/Displays

35	Compaq Computer Corporation	68-69
110	Hyundai Monitors Division	98
108	Iiyama	135
170	KDS	89
96	LG Electronics U.S.A., Inc.	44
182	Mitsubishi Electronics America	151
164	Nokia	23
151	Princeton Graphics Systems	18-19
207	Shin Ho Electronics	103A-B
206	Smile, Int'l	245
-	Sony Electronics, Inc.	48-49
247	ViewSonic	259
224	ViewSonic	26-27

Multimedia

-	Casio, Inc.	227
-	Hewlett- Packard-Sure Store	73
204	Ricoh Corporation	171
-	Sony Electronics, Inc.	96-97

Other

10	ACS Innovations	108

Peripherals/Sharing Devices

-	Adaptec	54
243	Traveling SW	251

Power/Protection

45	APC	90-91
168	Para Systems	261
-	Canon Computer Systems	2-3
101	Fujitsu Computer Products	101
100	Fujitsu Computer Products	99
102	Fujitsu Computer Products	103
-	Lexmark	225
-	Okidata	81
225	QMS	95
188	Seiko Instruments	309
124	Tektronix	215

Scanners/Digitizers

-	Epson America, Inc.	273
250	UMAX Technologies	67
-	Visioneer	28

Storage/Backup Devices

89	Fujitsu Computer Products	131
-	Hewlett- Packard-Colorado	157
147	MegaHaus Hard Drives	290
161	Nomai	169
251	Western Digital	31

SOFTWARE

Communications/Fax/Modems

193	Qualcomm	104
211	Smith Micro	226

Database Management

-	Claris	50

Dataconversion

81	Dataviz, Inc.	257

Desktop Mapping

37	Delorme	83

Graphics

139	Macromedia	267
-	Visio	102

Management

195	PC America	288

Optical Character Recognition

91	Caere Corporation	253
257	Xerox Corporation	243

Operating Systems

-	Microsoft	C2 - P1

Reader service number | Page

Other
98 Gemini Industries, Inc. . . . 177

Schedule Software
- Futuris Corp. 238

Software Suites
70 Corel Corporation 111
93 Corel Corporation 255

Statistics
253 SPSS 240

Utilities
8 Arc Soft, Inc. 173
212 PKWARE 30
185 Quarterdeck Office Systems 205
189 Quarterdeck Office Systems 207
190 Quarterdeck Office Systems 209

Video
10 ACS Innovations 108
211 Smith Micro 226
218 Stefra Corporation 311

Web Authoring Tools
- Spot Magic 155

Windows
212 PKWARE 30

Word Processing
70 Corel Corporation 111
93 Corel Corporation 255

MISCELLANEOUS

Automobiles
- Chevrolet Monte Carlo 13
- Dodge Stratus 217

Books/Periodicals/ Subscriptions
- Computer Book Club. 287

Computer Accessories
- Logitech 113
- Microsoft 93

Furniture
- Anthro 22

Mail Order
68 Computer Discount Warehouse 178-179
46 Computer Discount Warehouse 282-283
88 EPS Technologies 191-196
- LA Trade 289
147 MegaHaus Hard Drives 290
157 Midwest Computer Works 286
169 Midwest Computer Works 284-285
154 Monorail 175
- NRI Schools 229-230
- NRI Schools 159
165 PC Connection 280-281
- PC Universe 103C-D

Reader service number | Page

129 PCs Compleat 276-277
129 PCs Compleat 278-279
231 USA Flex 275

Online Services
- AT & T 75
85 EarthLink 269
- Mind Spring 236
172 PC World Online 247

Trade Shows
- IDC Directions '97 310

Training
- NRI Schools 229-230
- NRI Schools 159

Products Featured in Editorial

Get more information—circle the appropriate number on the reader service card.

Antivirus Software
724 Dr. Solomon's Anti-Virus Toolkit, Dr Solomon's Software 181
725 F-PROT, Command Software Systems 181
- IBM AntiVirus, IBM 181
726 McAfee VirusScan for Windows 95, McAfee Associates. 181
723 PC-Cillin II, Touchstone Software 181
727 Symantec Norton AntiVirus 2.0, Symantec 181
728 ThunderByte Anti-Virus, TCT/ThuderBYTE Corp. . . 181

CD-ROM Drive
739 Panasonic Big 5 SQ-TC510N, Panasonic 80

Communication Tool
742 Magic Cap for Windows 95, General Magic 86
741 Netopia Virtual Office, Farallon Communications 82

Desktop Computers
682 AST Advantage! 9304, AST 210
683 Austin Power Plus 133, Austin Computer 210
658 Compaq Deskpro Model 5200/1080, Compaq Computer 201
670 Compaq Presario 4402, Compaq Computer. 210
664 Compaq Presario 4716, Compaq Computer. 201
674 CyberMax Cyrix MAX C3 P166+, CyberMax 210
665 Dell Dimension P133v, Dell Computer 210
731 Dell Dimension P200v, Dell Computer 244

Reader service number | Page

647 Dell Dimension XPS M200s, Dell Computer . . . 201
648 Dell Dimension XPS Pro200n, Dell Computer 201
668 Dell OptiPlex GS+ 5200L, Dell Computer 210
649 Dell OptiPlex GXpro 200, Dell Computer 201
681 Diamond Technologies P133, Diamond Technologies 210
679 First Computer FCS P-120, First Computer 210
669 Gateway 2000 G6-180, Gateway 2000. 210
653 Gateway 2000 G6-200, Gateway 2000. 201
667 Gateway 2000 P5-133, Gateway 2000. 210
651 Gateway 2000 P5-200 FPC, Gateway 2000. 201
734 Gateway P5-166 Family PC, Gateway 2000. 244
662 HP Pavilion 7280P, Hewlett-Packard 201
657 HP Pavilion 7285, Hewlett-Packard 201
732 HP Pavillion 7280, Hewlett-Packard. 244
733 HP Pavillion 7285, Hewlett-Packard. 244
660 HP Vectra 500 Model 515MCx 5/166, Hewlett-Packard 201
656 HP Vectra VA 6/200 MT, Hewlett-Packard 201
671 HP Vectra VE 5/133, Hewlett-Packard 210
663 HP Vectra VL4 5/200MT, Hewlett-Packard 201
672 HP Vectra XM5/120 Series 4, Hewlett-Packard 210
- IBM PC 350 P-166, IBM . . 210
- IBM PC 350 P200, IBM . . 201
- IBM PC 365, IBM. 201
680 Micro Express MicroFlex PCI/5133, Micro Express 210
655 Micron Home MPC P200, Micron Electronics 201
735 Micron Home MPC, Micron Electronics. 244
650 Micron Millennia Pro2 200 B, Micron Electronics. 201
666 Micron P133 Millennia, Micron Electronics 210
652 Micron P166 Millennia, Micron Electronics 201
677 Netis N5133DPS, Netis 210
676 ProGen Discover MPEG II P150, ProGen 210
673 Quantex QP5/166 SM-2, Quantex. 210
661 Quantex QP5/200-SM3, Quantex. 201

Reader service number | Page

659 Quantex QP5/200MMX SM-3, Quantex 201
654 Quantex QP6/200 PD-4, Quantex. 201
675 Quantex QP6/200 Pro, Quantex. 210
678 Vektron Home Office P133, Vektron. 210

Dictation Software
- VoiceType Simply Speaking, IBM Speech Systems 82

Digital Cameras
779 AGFA ePhoto 307, Afga Div, Bayer Corp. 146
780 Apple QuickTake 150, Apple Computer 146
781 Canon PowerShot 600, Canon Computer Systems 146
787 Casio QV-100 and QV-300, Casio 154
782 Casio QV10A Plus, Casio 146
- Epson PhotoPC 500, Epson America 154
- Epson PhotoPC, Epson America. 146
788 Fujifilm DS-7, Fujitsu Computer Products of America 154
783 Kodak DC20, Eastman Kodak Company 146
789 Kodak DC25, Eastman Kodak Company 154
784 Kodak DC40 and DC50, Eastman Kodak Company. 146
790 Minolta Dimage V, Minolta. 154
785 Olympus D-200L, Olympus America 146
750 Olympus D-300L, Olympus America 94
791 Olympus D0300L, Olympus America. 154
786 Ricoh RDC-2, Ricoh. 146
792 Sony DSC-F1, Sony 154

Graphics Boards
716 ATI 3D Xpression+ PC2TV, ATI 237
722 Diamond Stealth 3D 2400XL, Diamond Multimedia 237
717 Diamond Stealth 3D 3400XL, Diamond Multimedia 237
719 Hercules Dynamite 128/Video, Hercules. 237
715 Hercules Terminator 3D, Hercules. 237
721 Matrox Millennium, Matrox 237
714 Matrox Mystique, Matrox 237
718 STB Lightspeed 128, STB. 237

Reader service number — Page

713 STB Velocity 3D, STB 237
720 VideoLogic GrafixStar 600, VideoLogic 237

Groupware
753 SamePage 2.0, WebFlow, Inc. 101

Handheld Computer
737 Philips Velo 1, Philips Electronics 79

Hubs
761 Network Express, Network Express 249

Input Device
740 Mighty MouseMan, Logitech 82

Kid Browser
764 Kids' World Online, 7th Level 241

Miscellaneous Software
751 Micrografx FlowCharter 7, Micrografx 99
752 Policies Now!, Knowledge Point 99

Modems
749 Cardinal Voyager, Cardinal Technologies 94
709 Megahertz XJ4336, U.S. Robotics 239
706 Motorola ISG Premier 33.6, Motorola 239
708 Motorola Montana 33.6, Motorola 239
707 NewCom 33600efx, NewCom 239
703 Practical Peripherals PC288LCD V.34, Practical Peripherals 239
710 Practical Peripherals ProClass 288 V.34 Data/Fax Modem with EZ-Port, Practical Peripherals 239
711 TDK CyberExpress 3000, TDK 239
704 U.S. Robotics Courier V.Everything 33.6, U.S. Robotics 239
712 Zoom PCMCIA V.34C Plus Model 2870, Zoomtel 239
705 Zoom V.34X PLUS, Zoomtel 239

Monitors
625 Continental DigiView 1709D, Continental 235
804 CTX Opto PanoView 600, CTX 74
620 Iiyama Vision Master Pro 17, Iiyama 235
622 Mitsubishi Diamond Pro 87XTM, Mitsubishi 235
805 NEC MultiSync LCD300, NEC 74
629 NEC MultiSync P750, NEC 235
628 Packard Bell 3020, Packard Bell 235

Reader service number — Page

621 Panasonic PanaSync S17, Panasonic 235
806 Portrait PageView, Portrait Displays 74
627 Princeton Graphic EO75, Princeton Graphics 235
623 Princeton Graphic Ultra 17+, Princeton Graphics 235
807 Sceptre CD-1215T, Sceptre Technologies 74
626 ViewSonic 17GS, ViewSonic 235
624 ViewSonic PT770, ViewSonic 235
808 ViewSonic VP140 Flat Panel, ViewSonic 74
809 Wysevision WY-9307, Wyse 74

Notebook Computers
699 AcerNote Light Multimedia 374, Acer America 218
701 AST Ascentia J20, AST 218
702 Broadax NP8662D, Broadax 218
687 Compaq LTE 5250, Compaq Computer 218
696 Compaq Presario 1010, Compaq Computer 218
685 Dell Latitude LM P133ST, Dell Computer 218
686 Dell Latitude XPi P133ST, Dell Computer 218
693 Digital HiNote VP, Digital Equipment Corp. 218
694 Gateway 2000 Solo 2100 P-120, Gateway 2000 218
684 Gateway 2000 Solo 2100 P-133, Gateway 2000 218
697 HP Omnibook 5500CS, Hewlett-Packard 218
689 HP OmniBook 800 CT, Hewlett-Packard 218
IBM ThinkPad 760E, IBM 218
700 Mega Image Mega Book 911, Mega Image 218
691 Micron Millennia Transport, Micron Electronics 218
692 NEC Versa 6030H, NEC 218
690 Sharp PC-W100T, Sharp Electronics 218
688 Toshiba Portege 650CT, Toshiba 218
698 Toshiba Satellite 110CT, Toshiba 218
695 Toshiba Satellite Pro 420CDS, Toshiba 218

Office Suite
– SmartSuite 97, Lotus Development Corp. 164

Online Service
743 Microsoft Network, Microsoft 86

Paint Program
647 Paint Shop Pro, Adobe 127

Reader service number — Page

Photo Editing
767 Picture It!, Microsoft 242

Presentation Software
744 Active Office for Windows 95, Software Publishing Corp 88

Printers
747 Fujitsu PrintPartner 10V, 14AV, Fujitsu Computer Products of America 92
619 HP Color LaserJet 5M, Hewlett-Packard 231
615 HP DeskJet 1600CM, Hewlett-Packard 231
613 HP LaserJet 5M, Hewlett-Packard 231
– IBM Network Printer 12, IBM 231
611 Lexmark Optra Lx+, Lexmark 231
612 Lexmark Optra R+, Lexmark 231
746 NEC SuperScript 660plus, NEC 92
614 Okidata OL1200/PS, Okidata 231
616 Tektronix Phaser 350, Tektronix 231
618 Tektronix Phaser 550, Tektronix 231
748 Xerox DocuPrint 4512, 4512N, Xerox 92
617 Xerox XPrint 4920 Plus, Xerox 231

Push/Pull Products
796 BackWeb, BackWeb Technologies 66
798 FreeLoader, FreeLoader, Inc. 66
797 Intermind Communicator, Intermind Corp. 66
801 Netriever 2.0, Metz Software 70
799 NewsCatcher, Global Village Comm. 66
759 Peak Net.Jet, Peak Technologies 246
800 PointCast Network, PointCast 66
803 WebEx 2.0 , Traveling Software 70
802 WebWhacker 2.0, The ForeFront Group 70, 266

Reference CD-ROM
768 Compton's Interactive Encyclopedia 1997 Edition, Compton's NewMedia 242
766 Planix Home Design Suite 3D, Softdesk 242
769 World Book 1997 Multimedia Encyclopedia Deluxe Edition, IBM 242

Security Utility
736 PGPcookie.cutter and PGPmail 4.5, Pretty Good Privacy, Inc. 78

Reader service number — Page

Servers
610 AcerAltos 19000, Acer America 106
603 Compaq ProLiant 1500 5/133 Model 2100, Compaq Computer 106
609 Compaq ProLiant 5000 6/200, Compaq Computer 106
605 Digital Prioris HX 5166, Digital Equipment Corp. 106
604 Digital Prioris XL Server 5133, Digital Equipment Corp. 106
602 Digital Prioris ZX 5166, Digital Equipment Corp. 106
608 Digital Prioris ZX 6200MP/2, Digital Equipment Corp. 106
606 HP NetServer 5/133 LH, Hewlett-Packard 106
601 HP NetServer LH Pro, Hewlett-Packard 106
607 HP NetServer LX Pro, Hewlett-Packard 106

Sound Boards
738 Ubi Soft MaxiSound 64 Home Studio and MaxiSound 64 Home Theater, Ubi Soft Entertainment 80

Travel CD-ROM
763 Automap Trip Planner 1997, Microsoft 241
762 TripMaker 1997, Rand McNally 241

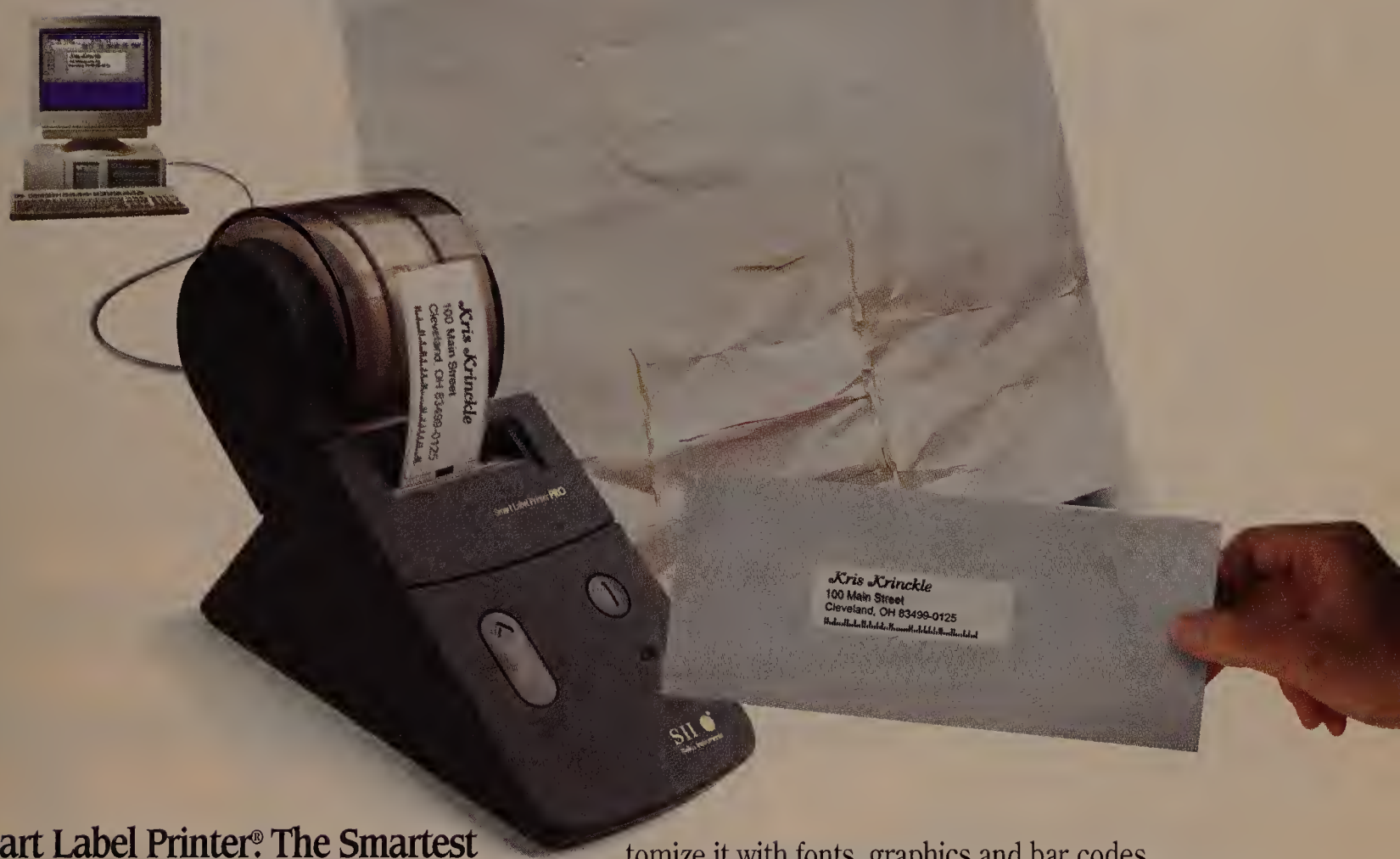
Utility
760 Ghost Professional 1.51, Binary Research 248
745 Partition Magic 3.0, Powerquest 88

VCR Utility
765 Program Master, Scottsdale Technologies 241

Video Capture
754 GrabIT, Aims Lab 103
755 Snappy Video Snapshot 2.0, Play, Inc. 103

Win 95 Utilities
641 Better Alt-Tab, Toggle Boolean 125
646 Cheyenne Backup for Windows 95, Computer Associates 127
640 Dashboard 3.0, Starfish Software 125
645 DUNCE, Vector Development 127
644 EMail Connection, ConnectSoft 127
648 Hide-It, JASC 127
649 Power Toys, Microsoft 127
643 PowerDesk 2.0, Mijenix 127
642 Silver Wolf Desktop, Silver Wolf 125

"Can't I Print Just One Label?"



The Smart Label Printer®. The Smartest Way To Label Just About Anything.

Let's face it. Printing one label off an entire sheet just isn't smart. So use The Smart Label Printer instead. It's the easy, convenient way to quickly print labels for envelopes, packages, file folders, diskettes, ID badges, Rolodex® cards and VHS tapes–or anything else that needs a label.

Best of all, Smart Label software can capture an address or text right from your computer screen. There's no need to retype it. Which means you can print it instantly or save it to the built-in database. You can even customize it with fonts, graphics and bar codes. What's more, you can print a label without exiting an application, whether it's in an MS-DOS, Windows or Macintosh system.

The Smart Label Printer® EZ30. And The Smart Label Printer® Pro. Printing labels any other way is a waste.

Call for yours today.
1-800-688-0817 or e-mail to info@seikosmart.com.
On the Web at www.seikosmart.com.

SII
Seiko Instruments

Circle 188 on reader service card

Available at: COMPUSA THE COMPUTER SUPERSTORE · COMPUTER CITY · Fry's ELECTRONICS · OfficeMax · ELEK-TEK Computer Wonderland

Call: MicroWarehouse at 1-800-367-7080, MacWarehouse at 1-800-255-6227, PC & Mac Connection at 1-800-800-1111, Global Computer Supplies at 1-800-8GLOBAL, Inmac at 1-800-972-3212, or MISCO/Power Up at 1-800-876-4726.

Smart Label Printer is a registered trademark of Seiko Instruments. © 1996 Seiko Instruments USA Inc. All rights reserved.

Don't miss the industry's most respected forum on Information Technology

DIRECTIONS '97

One thing is certain in this constantly changing, dynamic world of information technology. You'd better be well informed if you expect to remain competitive.

For 32 years, the leading executives in the information technology industry have built on their success by attending IDC's Computer Industry Briefing Session. Spend just one day with top analysts from International Data Corporation and gain unique insight into the future of IT. Obtain an objective viewpoint of the industry today and what's ahead for tomorrow as we probe the issues and trends impacting emerging technologies.

To register and for more information, call:

1-800-343-4952

March 11, 1997
Boston, MA
Hynes Convention Center

March 19, 1997
San Francisco, CA
San Francisco Marriott

Co-sponsored by:

PC WORLD · INFOWORLD · COMPUTERWORLD · NetworkWorld

International Data Corporation
5 Speen Street, Framingham, MA 01701

AGENDA

8:45-11:50 MORNING SESSIONS

- **Introduction**
- **Capturing the Top 10 IT Growth Opportunities**
  Frank Gens, Senior Vice President, Research
- **Will the Telcos Own the Internet? IT Opportunities and Impact**
  Gigi Wang, Senior Vice President, Communications Industry Research
- **Outlook for New Internet Technologies**
  John Gantz, Senior Vice President, Personal Systems and Services Research
- **Software Economics Beyond Microsoft: What Works?**
  Tony Picardi, Group Vice President, Software Research

Session A 1:15 - 2:00	Session B 2:15 - 3:00	Session C 3:15 - 4:00
TRACK 1: Internet Hot Spots		
Internet Technologies: Opportunities & Challenges — Ted Julien	Java's Race to Overtake HTML — Evan Quinn	New Media: Is It Ready for Prime Time? — Bill Ablondi
TRACK 2: PCs for the Next Millennium		
Plugging in the Toaster: IDC's Outlook on the Information Appliance Marketplace — Bruce Stephen	The Vibrant World of the PC — Eric Lewis	Semiconductor Opportunities: System on a Chip Solutions — Mario Morales
TRACK 3: Winning Software Strategies		
The Application-Centered Data Warehouse Emerges: What Partners and Channels Should You Pursue? — Henry Morris	Internet Applications...Is Client/Server Dead? — Clare Gillan, Michael Sullivan-Trainor	Bill's New Toy: Can Microsoft Cut It in Content? — David Card
TRACK 4: NT in the Enterprise		
NT Adoption — How Fast Will It Happen? — David P. Vellante	NT Servers and Clients: Building Winning Strategies — Jay Bretzmann	NT: Unix Killer or New Market Growth? — Dan Kusnetzky
TRACK 5: LAN/WAN Dynamics		
Next-Generation LANs: Treasure...and Target! — Mark Leary	Extending the Enterprise: Remote Access, Wide Area Bandwidth, and More — Lee W. Doyle	Network Management: Adding Value to the Package — Rick Villars
TRACK 6: Market Spotlight		
The Battle for the Home: Global Prospects for New Media Products and Services — Richard Zwetchkenbaum	The Year 2000: Tools and Services Industry Gold Rush and the Realities of End-User Projects — Tom Oleson	Japan and Asia/Pacific Market Outlook — Philippe de Marcillac

4:05-4:50 Keynote Address
Dr. Robert M. Metcalfe, Vice President of Technology, IDG

4:50 Coctail Reception

Instant Access to Photos and Video Clips

Easy to use, Video Control gives you instant access to video and photo images without ever leaving your favorite applications!

VIDEO CONTROL 2.0™

FOR WINDOWS 95

Only $49

Plus Shipping and Handling

✓ Drag & Drop

Drag and drop photos or video clips into the most popular desktop applications.

✓ E-mail

Easily attach photos and video clips to your e-mail messages.

✓ Capture Video and Photo Images

Works with the most popular image capturing devices. (digital video cameras, video capture boards, etc.)

✓ Preview Live Video

Shows Live video from VCRs, camcorders and televisions.

VIDEO ENABLING TECHNOLOGY
STEFRA CORPORATION ™

To order

VIDEO CONTROL 2.0™

visit www.stefra.com

(408) 437-1440 • Fax (408) 437-0404

Circle 218 on reader service card

Video Control 2.0 is a trademark of Stefra Corporation.

Is That a Computer in Your Pocket?

GREAT NEWS: HANDHELD COMPUTERS now include every feature you could possibly want. Not-so-great news: The features are never all in a single machine. We won't see the perfect palmtop anytime soon, but we can dream, can't we? I've got an idea or six.

Size and weight: The new handhelds using Windows CE get this about right. At a bit under a pound, they're too heavy to carry around in a shirt pocket, but at least they fit there. Another form factor I like: IBM's Palm Top PC-110, a 1 3/8-pound Windows machine about the size of a paperback book. Unfortunately, it's available only in Japan—and IBM isn't saying whether it will be released over here.

Screen: The new Windows CE models have nice wide screens, but their feeble backlighting will really strain your eyes. Hewlett-Packard's forthcoming CE machine will have more pixels but no more juice. The IBM's razor-sharp backlit color screen is a bit smaller, but it's easily the best I've seen on a handheld.

Battery: The two AA cells in the initial Windows CE units can't keep a decent backlight running for long. The Palm Top cleverly uses a potent battery that's standard in video cameras. I'll trade battery life for a readable screen any day of the week.

Handwriting and drawing: There's no easy way to use a keyboard while standing up, so handwriting recognition is critical. I haven't seen Apple's latest Newtons, but their recognition is said to be much improved. Another approach, used in U.S. Robotics' Palm Pilot and HP's OmniGo, employs Graffiti handwriting-recognition software. Unfortunately, you have to write the way the machine wants you to. Of units with a keyboard, the OmniGo gets points for its ability to bend over backwards, making the screen a usable tablet.

Keyboard: Okay, there is one way to use a keyboard when you're standing up: Hold the machine by the sides and type with your thumbs. The Palm Top's keyboard is so tiny, that may be the *only* way you can type, but other units are not much better. A "butterfly" type keyboard that expands beyond the palmtop's edges could make touch-typing possible instead of painful. Engineers, forget mousetraps! Build a better small keyboard, and the world will beat that path to your door.

Engineers, forget **mousetraps!** Build a better small **keyboard,** and the world will beat that path to your **door.**

Pointing device: When you're writing with it, a stylus makes a fine mouse surrogate. When you're typing, the stylus is hopelessly awkward, unless you have a third hand to hold the thing. IBM's eraserhead pointing devices offer maximum flexibility in minimum space, even if they're poorly implemented on the Palm Top PC. Both stylus and eraserhead, please.

Connectivity: The Windows CE units accommodate PC Card hardware and Web browser software. That's a step in the right direction, but PC Card modems can drain batteries in a flash. Philips's Velo 1 model builds in a power-saving modem with its own RJ-11 jack, and omits the card slot. Personally, I'd keep the slot and wait for new developments in wireless modems and low-power cards.

Storage: IBM's Palm Top stuffs its PC Card slot with a hard drive, a big problem on a machine with only a 2400-bps modem. I want a hard drive *and* a free slot.

Operating system: If you know how to use Windows 95, you can figure out how a Windows CE machine works in about 10 minutes. Unfortunately, CE isn't optimized for its environment. Double-clicking with a stylus is hard, and astoundingly, you can't minimize the Taskbar to reclaim some screen space. Besides, once you include a hard drive, you can run Windows and the apps you already have instead of cut-down versions. That's what the Palm Top PC allows.

So let's see where that leaves me: I want a Windows or Windows CE device with a usable keyboard and an eraserhead. Its flip-back backlit color screen handles handwriting recognition and drawing. It comes with a software modem, a hard drive, a PC Card slot, and compact batteries. It fits into a shirt pocket and weighs less than a pound. And, like Casio's Cassiopeia, it has an LED on the outside of the case to signal appointments.

Oh, and price? I'd be willing to fork over $1000, but today even that might not buy what I really want. Still, I can dream, can't I? ■

PC World *contributing editor Stephen Manes is a columnist for the* New York Times *and coauthor of* Gates: How Microsoft's Mogul Reinvented an Industry *(Touchstone/Simon & Schuster, 1994, 800/223-2348).*

IDG INTERNATIONAL DATA GROUP

PC World™ (ISSN 0737-8939) is published monthly at $29.90 for one year (12 issues), $59.80 for two years (24 issues), $89.70 for three years (36 issues) by PC World Communications, Inc., 501 Second St. #600, San Francisco, CA 94107. Foreign orders must be prepaid in U.S. funds with additional postage. Add $20 per year for Canada and Mexico; add $46 per year for airmail for all other countries. Canadian GST Registration #R124669680. Periodicals postage paid at San Francisco and additional mailing offices. Canada Post International Publications Mail Product, (Canadian Distribution) Sales Agreement No. 0463566. POSTMASTER: Send address changes to PC World, Subscription Dept., P.O. Box 55029, Boulder, CO 80322-5029. Editorial and business offices: 501 Second St. #600, San Francisco, CA 94107, 415/243-0500. Copyright © 1997, PC World Communications, Inc. All rights reserved. The trademark PC World is owned by International Data Group and used under license by PC World Communications, Inc. PC World Top 20™, Top 20™, PC World Top 10™, Top 10™, PC World Top 100™, Top 100™, and Consumer Watch™ are trademarks of International Data Group, Inc., and used under license by PC World Communications, Inc. Printed in the United States.

PHOTOGRAPH: ERIK BUTLER

NO ONE CARRIES A BETTER SELECTION

DELL DIMENSION™ XPS PENTIUM® PRO CHIP–BASED DESKTOPS

Base features: ◆ Mini Tower Model ◆ 256KB Internal L2 Cache ◆ MS® Office 95 Pro with Bookshelf ◆ **MS Office 97, Professional or Small Business Edition Upgrade Coupon**†† ◆ 30 Days Free Support ◆ MS Mouse ◆ 3 Year Limited Warranty† with 1 Year On-site△ Service

DELL DIMENSION XPS Pro200n
200MHz PENTIUM PRO PROCESSOR

Base features listed above plus:
- 64MB EDO Memory with ECC
- *NEW* 4.3GB Hard Drive [9.5ms]
- 20TD Trinitron® Monitor (19.0" v.i.s., .26dp, 1600 x 1200 max. res.)
- Matrox Millennium 4MB WRAM Video Card
- 12X EIDE CD-ROM Drive
- AWE32 Wave Table Sound Card
- Altec ACS-290 Speakers with Subwoofer
- Microsoft® Windows NT® Workstation 4.0

$3999

Business Lease◊: $144/Mo.
Order Code #500209

DELL DIMENSION XPS Pro200n
200MHz PENTIUM PRO PROCESSOR

Base features listed above plus:
- 32MB EDO Memory with ECC
- 2GB SCSI UW Hard Drive [7200RPM, 8ms]
- Adaptec 2940UW Controller Card
- 17LS Monitor (15.7" v.i.s.)
- Matrox Millennium 4MB WRAM Video Card
- *NEW* 8X SCSI CD-ROM Drive
- AWE32 Wave Table Sound Card
- Altec ACS-90 Speakers
- **FREE Norton/Visio Express Software Suite****
- Microsoft Windows® 95

$2999

Business Lease: $111/Mo.
Order Code #500208

DELL DIMENSION XPS Pro180n
180MHz PENTIUM PRO PROCESSOR

Base features listed above plus:
- 32MB EDO Memory
- 3.2GB Hard Drive [12ms]
- 17LS Monitor (15.7" v.i.s.)
- 2MB EDO ViRGE 3D Video Card
- 12X EIDE CD-ROM Drive
- Sound Blaster 16 PnP Sound Card
- Altec ACS-90 Speakers
- **FREE Norton/Visio Express Software Suite**
- Microsoft Windows 95

★ *Upgrade to Matrox Millennium 4MB WRAM Video Card, add $145.*

$2399

Business Lease: $89/Mo.
Order Code #500207

NEW DELL DIMENSION XPS DES

Base features: ◆ Mini Tower Model ◆ 5 with Bookshelf ◆ **MS Office 97, Professiona** Warranty with 1 Year On-site Service ◆ **FR**

DELL DIMENSION XPS M200s
200MHz PENTIUM PROCESSOR
WITH MMX TECHNOLOGY

Base features listed above plus:
- 64MB SDRAM Memory
- *NEW* 4.3GB Hard Drive [9.5ms]
- 17HS Trinitron Monitor (15.9" v.i.s., .26dp, 1600 x 1200 max. res.)
- AWE32 Wave Table Upgrade Card
- Altec ACS-290 Speakers with Subwoofer
- 33.6 U.S. Robotics Telephony Modem

★ *Upgrade to a 20TD Trinitron Monitor (19.0" v.i.s., .26dp, 1600 x 1200 max. res.), add $799.*

$3399

Business Lease: $126/Mo.
Order Code #500206

DELL DIMENSION PENTIUM CHIP–BASED DESKTOPS

Base features: ◆ Mini Tower Model ◆ 256KB Pipeline Burst Cache ◆ 12X EIDE CD-ROM Drive ◆ 64-bit PCI 2MB DRAM Video ◆ Microsoft Windows 95 ◆ 30 Days Free Support ◆ Dell Mouse ◆ 3 Year Limited Warranty with 1 Year On-site Service

DELL DIMENSION P200v
200MHz PENTIUM PROCESSOR

Base features listed above plus:
- 16MB SDRAM Memory
- 3.2GB Hard Drive [12ms]
- *NEW* 800HS Trinitron Monitor (13.7" v.i.s.)

★ *Upgrade to 32MB SDRAM, add $149.*
★ *Upgrade to a 17LS Monitor (15.7" v.i.s.), add $175.*
★ *Sound Balster 16 PnP Sound Card and Altec ACS-90 Speakers, add $89.*
★ *Upgrade to 512KB Pipeline Burst Cache, add $25.*

$1999

Business Lease: $74/Mo.
Order Code #500202

DELL DIMENSION P166v
166MHz PENTIUM PROCESSOR

Base features listed above plus:
- 16MB SDRAM Memory
- 2.1GB Hard Drive [12ms]
- 15LS Monitor (13.7" v.i.s.)
- 3Com Etherlink Interface Combo ISA Card

★ *Upgrade to 32MB SDRAM, add $149.*
★ *Upgrade to a 3.2GB Hard Drive (12ms), add $75.*
★ *Upgrade to an 800HS Trinitron Monitor (13.7" v.i.s.), add $49.*

$1799

Business Lease: $67/Mo.
Order Code #500201

DELL® POWEREDGE® PENTIUM PRO CHIP–BASED SERVERS

Base features: ◆ 256KB Integrated L2 Cache ◆ Integrated PCI Ultra/Wide SCSI-3 Controller ◆ 8X SCSI CD-ROM Drive ◆ 3Com 10/100 PCI Ethernet Adapter ◆ Intel® LANDesk™ Server Manager v2.5x ◆ 3 Year Warranty with 1 Year On-site Service˘ ◆ **MS Windows NT Server 4.0** (10 Client Access Licenses)

DELL POWEREDGE 2100 SERVER
200MHz PENTIUM PRO PROCESSOR

Base features listed above plus:
- 64MB ECC EDO Memory (512MB Max)
- *NEW* 4GB Ultra/Wide SCSI-3 Hard Drive [7200RPM, 8ms] (12GB Max)
- 6 Expansion Slots: 3 PCI, 3 EISA
- 6 Drive Bays: 3 External 5.25"/ 3 Internal 3.5"

★ *2nd 4GB Ultra/Wide SCSI-3 Hard Drive, add $1099.*
★ *4/8GB DAT SCSI Internal TBU, add $849.*
★ *Upgrade to 3 Years On-site Service, add $99.*

$4399‡

Business Lease: $158/Mo.
Order Code #250056

DELL POWEREDGE 2100 SERVER
200MHz PENTIUM PRO PROCESSOR

Base features listed above plus:
- 32MB ECC EDO Memory (512MB Max)
- *NEW* 2GB Ultra/Wide SCSI-3 Hard Drive [7200RPM, 8ms] (12GB Max)
- 6 Expansion Slots: 3 PCI, 3 EISA
- 6 Drive Bays: 3 External 5.25"/ 3 Internal 3.5"

★ *Upgrade to a NEW Ultrascan 800HS Trinitron Monitor (13.7" v.i.s.), add $399.*
★ *3Com Office Connect 8 Port TPC Hub, add $149.*
★ *DirectLine℠ Network OS Support, add $399.*

$3799‡

Business Lease: $137/Mo.
Order Code #250055

‡Non-discountable promotional pricing. †For a complete copy of our Guarantees or Limited Warranties, please write Dell USA L.P., One Dell Way, Round Rock, TX 78664. ††For a limited time (with qualifying purchase), receive a coupon for a free MS Office 97 upgrade (either Professional or Small Business Edition) on CD only (no documentation included) after release from Microsoft. Call for details. ◊Business leasing arranged by Leasing Group, Inc. **Norton/Visio Express Software Suite is available only on Dell Dimension systems purchased with the combination of MS Office and Microsoft Windows 95. Visio Express 4.0 is an OEM version and a subset of Visio 4.0. Software may not include all documentation and may differ from retail version. *System weight with floppy drive or CD-ROM in options bay. △On-site service provided by BancTec Service Corporation. On-site service may not be available in certain remote locations. ˘On-site service for the PowerEdge 2100 Server is provided by Digital Equipment Corporation and is available in 29 metropolitan areas. ★Prices and specifications valid in the U.S. only and subject to change without notice. The Intel Inside logo and Pentium are registered trademarks and LANDesk, the Intel LANDesk logo and MMX are trademarks of Intel Corporation. MS, Microsoft, Windows and Windows NT are registered trademarks of Microsoft Corporation. XJACK is a registered trademark of US Robotics Mobile Communications Corporation. 3Com and EtherLink are registered trademarks of 3Com Corporation. Trinitron is a registered trademark of Sony Corporation. DirectLine is a service mark of Dell Computer Corporation. ©1997 Dell Computer Corporation. All rights reserved.

OF POWER TOOLS.

KTOPS – PENTIUM CHIP WITH MMX™ TECHNOLOGY

2KB Single Bank Pipeline Burst Cache ◆ 12X EIDE CD-ROM Drive ◆ Matrox Millennium 4MB WRAM Video Card ◆ MS Office 95 Pro **or Small Business Edition Upgrade Coupon** ◆ Microsoft Windows 95 ◆ 30 Days Free Support ◆ MS Mouse ◆ 3 Year Limited **EE Norton/Visio Express Software Suite** ◆ 2 Universal Serial Bus (USB) Ports

DELL DIMENSION XPS M200s
200MHz PENTIUM PROCESSOR
WITH MMX TECHNOLOGY

Base features listed above plus:
- 32MB SDRAM Memory
- *NEW* 4.3GB Hard Drive [9.5ms]
- 17LS Monitor (15.7" v.i.s.)
- AWE32 Wave Table Upgrade Card
- Altec ACS-490 Full Dolby® Surround Sound Speakers with Subwoofer
- 33.6 U.S. Robotics Telephony Modem

★ *Upgrade to 64MB SDRAM, add $299.*
★ *Upgrade to a 17HS Monitor (15.9" v.i.s., .26dp, 1600 x 1200 max. res.), add $165.*

$2999

Business Lease: $111/Mo.
Order Code #500205

DELL DIMENSION XPS M200s
200MHz PENTIUM PROCESSOR
WITH MMX TECHNOLOGY

Base features listed above plus:
- 32MB SDRAM Memory
- 3.2GB Hard Drive [12ms]
- 17LS Monitor (15.7" v.i.s.)
- Integrated Sound Blaster 16 Sound
- Altec ACS-90 Speakers

★ *Upgrade to 64MB SDRAM, add $299.*
★ *Upgrade to a 4.3GB Hard Drive (9.5ms), add $75.*
★ *Upgrade to a 17HS Monitor (15.9" v.i.s., .26dp, 1600 x 1200 max. res.), add $165.*

$2599

Business Lease: $96/Mo.
Order Code #500204

DELL DIMENSION XPS M166s
166MHz PENTIUM PROCESSOR
WITH MMX TECHNOLOGY

Base features listed above plus:
- 32MB SDRAM Memory
- 2.1GB Hard Drive [12ms]
- *NEW* 800HS Trinitron Monitor (13.7" v.i.s.)
- Integrated Sound Blaster 16 Sound
- Altec ACS-90 Speakers

★ *Upgrade to a 17LS Monitor (15.7" v.i.s.), add $175.*
★ *Upgrade to Altec ACS-290 Speakers with Subwoofer, add $75.*

$2199

Business Lease: $B1/Mo.
Order Code #500203

DESKTOP UPGRADES

UPGRADES	ADD
★ *104-Key Performance Keyboard*	*$ 29*
★ *3Com® 3C905 EtherLink® 10/100 PCI Card*	*$139*
★ *33.6 U.S. Robotics Telephony Modem*	*$149*
★ *Iomega Zip 100MB IDE Internal Drive with 3-Pak of Cartridges*	*$149*
★ *4/8GB EIDE TR4 Tape Backup*	*$299*
★ *Upgrade to 3 Years On-site Service*	*$ 99*

DELL LATITUDE® PENTIUM CHIP–BASED NOTEBOOKS

Base features: ◆ 256KB L2 Cache ◆ PCI Bus with 128-bit Graphics Accelerator ◆ Integrated 16-bit Stereo Sound ◆ Smart Lithium Ion Battery ◆ IrDA 1.0 Standard Compliant on LM P133ST, IrDA 1.1 Standard Compliant on XPi CD P150ST ◆ Touchpad ◆ Extendable 1 Year Warranty†

DELL LATITUDE LM P133ST
133MHz PENTIUM PROCESSOR

Base features listed above plus:
- 12.1" SVGA Active Matrix Color Display
- 40MB RAM/2.1GB Hard Drive
- Options Bay accepts *NEW* 10X CD-ROM, 3.5" Floppy Drive (both included) or Optional 2nd Li-Ion Battery
- 33.6 XJACK®/Cabled Modem
- Dell Latitude LM Port Replicator
- Under 7 Pounds*

★ *3Com 10Base-T Network Card, add $139.*
★ *Dell Latitude LM Port Replicator, add $159.*

$3999‡

Business Lease: $144/Mo.
Order Code #800083

DELL LATITUDE LM P133ST
133MHz PENTIUM PROCESSOR

Base features listed above plus:
- 12.1" SVGA Active Matrix Color Display
- 24MB RAM/1.3GB Hard Drive
- Options Bay accepts 6X CD-ROM, 3.5" Floppy Drive (both included) or Optional 2nd Li-Ion Battery
- 33.6 XJACK/Cabled Modem
- 2nd Lithium Ion Battery
- Under 7 Pounds*

★ *2nd Lithium Ion Battery, add $249.*

$3599‡

Business Lease: $130/Mo.
Order Code #800089

DELL LATITUDE LM P133ST
133MHz PENTIUM PROCESSOR

Base features listed above plus:
- 12.1" SVGA Active Matrix Color Display
- 16MB RAM/1.3GB Hard Drive
- Options Bay accepts 6X CD-ROM, 3.5" Floppy Drive (both included) or Optional 2nd Li-Ion Battery
- Under 7 Pounds*

★ *Upgrade to 40MB RAM, add $299.*
★ *Upgrade to a 2.1GB Hard Drive, add $300.*
★ *33.6 XJACK/Cabled Modem, add $239.*
★ *2nd Lithium Ion Battery, add $249.*

$2999‡

Business Lease: $111/Mo.
Order Code #800051

DELL LATITUDE XP*i* CD P150ST
150MHz PENTIUM PROCESSOR

Base features listed above plus:
- 12.1" SVGA Active Matrix Color Display
- 16MB RAM/1.3GB Hard Drive
- Internal 6X CD-ROM and 3.5" Floppy Drive
- Optical Trackball
- 7.3 Pounds

★ *Upgrade to a 2.1GB Hard Drive, add $300.*
★ *Upgrade to 48MB RAM, add $399.*
★ *Leather Carrying Case, add $129.*

$3899‡

Business Lease: $140/Mo.
Order Code #800061

DELL OPENS STORE ON THE WEB

Now you can buy Dell systems online. In fact, you can custom configure, price and track delivery of your PCs right on the Web. It's simple, secure and open twenty-four hours a day. So make shopping easier on yourself. Visit the new Dell Web site Store today. Just point your browser to www.dell.com/buydell and click on "Buy A Dell."

Mon-Fri 7am-9pm CT • Sat 10am-6pm CT
Sun 12pm-5pm In Canada, call 800-232-6978

Keycode #03225

DELL®

TO ORDER

800-545-6098

http://www.dell.com/buydell

CAN YOU REALLY AFFORD TO BUY THE #2 NOTEBOOK?

ANNUAL GUIDE TO COMPUTERS

Laptops

TRAVELING COMPANIONS

Some Popular Pentium Notebooks

RATING	MFR/PRICE	MODEL/SCREEN	CONFIGURATION	COMMENTS
3.1	DELL COMPUTER $2999	Latitude LM P133ST, 12-in. TFT display, (133 Mhz)	6.8 lb 16MB RAM, 810MB disk, 6X CD-ROM	Great
2.8	IBM PC CO. $6999	ThinkPad 760ED 1, 2-in. TFT display (133 Mhz)	1.2GB disk, 4X	
2.8	WINBOOK COMPUTER $3999	WinBo 11.3 (		
2.7	COMPAQ COMPUTER $6398	L		
2.7	HEWLETT-PACKARD $6120			

– Business Week, November 4, 1996 –

What's wrong with this picture? The notebook that gives you the most performance, usability and features costs half the price of notebooks that give you less. (Notebooks, by the way, that you probably thought gave you more.) And remember, you have this information on the very best authority. *Business Week, the* business publication, in their Second Annual Computer Buying Guide cited the Dell Latitude LM P133ST as "the top ranked machine in the tests" and the notebook they'd most like to travel with. So if you're shopping for a notebook, buy the best. After all, you can afford it.

DELL® LATITUDE® LM P133ST
133MHz PENTIUM® PROCESSOR

- ★ **12.1" SVGA Active Matrix Color Display**
- ★ **16MB RAM/1.3GB Hard Drive**
- 256KB L2 Cache
- Options Bay accepts 6X CD-ROM, 3.5" Floppy Drive (both included) or Optional 2nd Li-Ion Battery
- ★ **PCI Bus with 128-bit Graphics Accelerator**
- Integrated 16-bit Stereo Sound
- Smart Lithium Ion Battery
- IrDA 1.0 Standard Compliant
- Touchpad
- Under 7 Pounds*
- Extendable 1 Year Warranty†
- ★ *Upgrade to 40MB RAM, add $299.*
- ★ *Upgrade to a 2.1GB Hard Drive, add $300.*

$2999

Business Lease◊: $111/Mo.
Order Code #800051

DELL®

TO ORDER
800-395-3664
http://www.dell.com/buydell

Mon-Fri 7am-9pm CT • Sat 10am-6pm CT
Sun 12pm-5pm In Canada, call 800-232-6978

Keycode #03224

intel inside pentium PROCESSOR

THE MOST AWARD-WINNING PC LINE OF 1996.

ISN'T THAT A WHOLE NEW AWARD?

- ★ PC MAGAZINE BEST PENTIUM PC OF 1996 - XPS line
- ★ PC COMPUTING MVP WORKHORSE OESKTOP - XPS P200s
- ★ PC MAGAZINE EOITORS' CHOICE AWARD - XPS Pro200n
- ★ PC MAGAZINE EOITORS' CHOICE AWARD - XPS P200s
- ★ 4-time PC WORLD PDWER OESKTOP BEST BUY - XPS P200s
- ★ 5-time WINOOWS MAGAZINE RECOMMENOEO LIST - XPS Pro200n
- ★ PC COMPUTING BEST AWARO - XPS Pro200
- ★ COMPUTER SHOPPER TOP 100 AWARO - XPS P166s
- ★ 5-time PC WORLO POWER OESKTOP BEST BUY - XPS Pro200n
- ★ WINDOWS MAGAZINE WIN100 '96 HARDWARE AWARDS - XPS line
- ★ PC WORLD HDME DESKTOP BEST BUY - P200v
- ★ 8-time WINOOWS MAGAZINE RECDMMENDED LIST - XPS P166s
- ★ PC COMPUTING 4 STAR AWARD - XPS P200s
- ★ PC WORLD BUDGET OESKTOP BEST BUY - P200v
- ★ 11-time WINOOWS MAGAZINE RECOMMENDEO LIST - P100t
- ★ 2-time PC COMPUTING 4 STAR AWARD - XPS Pro200n
- ★ 2-time WINDDWS MAGAZINE RECOMMENOED LIST - P200v
- ★ PC WORLD BUDGET OESKTOP BEST BUY - P133v
- ★ WINDOWS MAGAZINE WIN100 '96 HAROWARE AWAROS - OIMENSION line
- ★ PC MAGAZINE EOITORS' CHOICE AWARO - XPS P133c
- ★ PC CDMPUTING BEST AWARO - XPS P166c
- ★ 5-time PC WORLO BUOGET OESKTDP BEST BUY - P75t
- ★ 8-time PC WORLO POWER DESKTOP BEST BUY - XPS P133c
- ★ 2-time WINDDWS MAGAZINE RECOMMENOED LIST - XPS Pro200
- ★ PC WORLD BUDGET OESKTOP BEST BUY - P100t
- ★ 3-time PC COMPUTING 4 STAR AWARO - XPS P166c
- ★ PC WORLD HOME OESKTOP BEST BUY - P100t
- ★ 2-time WINOOWS MAGAZINE RECOMMENOED LIST - XPS Pro150
- ★ 5-time PC WORLO BUDGET DESKTOP BEST BUY - XPS P120c
- ★ PC COMPUTING 4 STAR AWARO - P100t
- ★ PC WORLD POWER OESKTOP BEST BUY - XPS P90c
- ★ 3-time WINOOWS MAGAZINE RECOMMENOEO LIST - XPS P166c
- ★ PC WORLO BUOGET DESKTOP BEST BUY - XPS P90c
- ★ PC WORLD POWER DESKTOP BEST BUY - XPS P166c

★ PLUS MORE THAT WE COULON'T FIT HERE.

***NEW* DELL DIMENSION™ XPS M200s**
200MHz PENTIUM® PROCESSOR **WITH MMX™ TECHNOLOGY**

- Mini Tower Model
- ★ **32MB SDRAM Memory**
- 512KB Single Bank Pipeline Burst Cache
- ★ **3.2GB Hard Drive [12ms]**
- *NEW* 800HS Trinitron® Monitor (13.7" v.i.s.)
- Matrox Millennium 4MB WRAM Video Card
- ★ **12X EIDE CD-ROM Drive**
- Integrated Sound Blaster 16 Sound
- Altec ACS-290 Speakers with Subwoofer
- MS® Office Professional with Bookshelf for Windows® 95
- ★ **MS Office 97, Professional or Small Business Edition Upgrade Coupon***
- FREE Norton/Visio Express Software Suite‡
- Microsoft® Windows 95/30 Days Free Support/MS Mouse
- 3 Year Limited Warranty† with 1 Year On-site^ Service
- ★ *Upgrade to a 17LS Monitor (15.7" v.i.s.), add $175.*

$2499

Business Lease◊: $92/Mo.
Order Code #500210

When it comes to the awards the Dell Dimension line has won in 1996, they truly are too numerous to mention here. Because the fact is, Dell Dimension has won awards for everything from technical excellence to sheer performance to best value. Awards that come from the most widely read and consulted authorities in the industry – *PC Magazine, PC World, PC Computing, Windows Magazine* and *Computer Shopper.* In total, the Dimension line has won 31% more of these awards than any other desktop PC. Which means we aren't just handing you a line when we say that when it comes to Dell Dimension, no other PC comes close.

TO ORDER

800-688-3355

http://www.dell.com/buydell

Mon-Fri 7am-9pm CT • Sat 10am-6pm CT
Sun 12pm-5pm In Canada; call 800-232-6978

Keycode #03223